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THE EFFECT OF A SIMULATION GAME
ON VOCATIONAL MATURITY

by



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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF EDUCATION IN EDUCATIONAL PSYCHOLOGY

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA

FALL, 1977



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ABSTRACT

The present study was carried out to test the effectiveness of the Life Career game in increasing vocational maturity scores. A total of eighty-three grade eleven students were administered the Career Development Inventory High School Form III as a pre and post-test measure. Forty-five of these students participated in the playing of Life Career for thirteen fifty-minute sessions, completing eight rounds per team. The results were analyzed using a three-way analysis of variance. Pre-test means between the experimental and control groups were not significant ($t = .14$; $df = 81$, $p > .20$), suggesting that the two groups were similar in their responses to the CDI. Following the experiment, however, significant main treatment effects were obtained ($F = 73.17$; $df = 1, 75$; $p < .00001$). These results suggest that the Life Career game was an effective tool to use for the teaching of vocational information, as significant increases in vocational maturity were found.

ACKNOWLEDGMENTS

To my thesis chairman, Dr. George Fitzsimmons.

To Bev Masse, Kim Bechtel, and the students of Paul Kane High School whose co-operation made this study possible.

To Dr. Bernard Schwartz, whose suggestions aided in the formation of this study.

To James Chapman, for the time spent helping with the data analysis.

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CHAPTER I

INTRODUCTION

Introduction

Vocational education has changed from a narrowly oriented occupation view to one of career education which is seen as a series of developmental experiences leading to a life pattern. William Bingham (1974) perceives career education's fundamental concern to be self-actualization with the beginning point being self awareness, progressing toward a purposeful pattern. Vocational psychologists view the concept of vocational maturity as a developmental process, a transaction between the organized environment and an organism with an inherently orderly growth potential. (Harris, 1974). This developmental process becomes the theoretical basis for the organization of vocational programs.

Vocational maturity is seen by Donald E. Super as a continuous process whereby the individual moves from a base in fantasy to a base in reality. This final transition between fantasy and reality occurs in the period between the end of high school and the beginning of work. Therefore, a high degree of vocational maturity should be attained by high school students. When vocational maturity is developed to a high degree, the occupational information an individual has increases in relevance, reliability, and specificity, and is used more often as a basis for decision. (Super and Overstreet, 1960).

High school students are seen as being in various stages of vocational development when viewed by Super's theory. Some are ready

to crystallize plans, some to specify goals, and some to implement a preference. (Jordaan, 1974). Many are not so highly developed, lacking the information and experience to make informed choices. (See Appendix C for an example.) Individual learning experiences must be provided for these students so their vocational development will flourish.

Vocational guidance, as Super defined it, is centered on the idea that "the process is one of helping a person to develop a picture of himself and of his role in the world of work, to test this concept against reality, and to convert it into a reality, with satisfaction to himself and benefit to society." (Super, 1951, p.88).

The counselor's function in a school setting must be seen as one of facilitator of decisions which are based on sound reasoning and knowledge. They should be seen as developers of decision-making skills in students. Clarke, Gelatt, and Levine (1965) discuss the counselor's role in vocational guidance and suggest that greater efforts be made to determine what specific information is relevant to the decisions faced by the high school students, and to gather and organize that information so students can use it effectively.

Statement of the Problem

The problem appears to be one of presenting vocational information and guidance to high school students who are in need of highly individualized programs because of their varying levels of vocational maturity. A program which could be used effectively with both sexes would be best suited to a school environment as no segregation of classes would have to occur. Although the job of disseminating information and implementing programs is often seen as being solely the job of the school counselor, further involvement on the part of staff

and students should be encouraged in order to meet the needs of the students.

Purpose of the Study

The purpose of this study was to investigate the effectiveness of a simulation game called Life Career in presenting vocational information to groups of students. This simulation game presents information in a way that is conducive to student interaction and motivation and implementation of it would be one way of coping with the problems previously mentioned. Vocational skill-building experiences are provided.

The effectiveness and utility of the program would be evaluated by its ability to increase student's scores on a test of vocational maturity. The game participants and a control group would be given a pre-test and after the experimental group received the program, post-tests would be given to both groups. The results would then be analyzed. The criteria measure to be used was the Career Development Inventory High School Form III, developed by Donald E. Super in 1976 after revisions were made on the 1971 edition of Form I. This measure has been developed as an evaluator of vocational programs, and should prove to be effective in measuring the usefulness of Life Career as a teaching tool in vocational guidance.

Limitations of the Study

The sample to be used in this study was comprised of grade eleven students from Paul Kane High School in St. Albert, Alberta. The total number of students to be used was eighty-three, forty-five of whom will participate in the playing of the simulation game, and thirty-eight of whom will act as a control group. This sample may not be typical of the population of grade eleven students in Alberta, or in Canada.

The Career Development Inventory High School Form III has, as of yet, remained an unpublished measure. Since its development in 1976 from the original Form I (1971), no published studies of the reliability and validity of this instrument have resulted; only results from the original form exist and have been cited.

It is for these reasons that readers should exercise prudence when generalizing from the results obtained here.

Definition of Terms

For the purpose of this study, the following definitions are used:

1. Vocational Maturity: As defined by Super and Overstreet (1960), vocational maturity is:

"the life stage the individual actually is in, as evidenced by the developmental tasks with which he is dealing, in relation to the life stage he is expected to be in, in terms of his age." (p.8)

2. Game: The term implies competition among participants and yielding to a winner.

3. Simulation: As defined by Dawson (1962), a simulation is: "the construction and manipulation of an operating model, that model being a physical or symbolic representation of all or some aspects of a social or psychological process (p.3).

4. Simulation Game: As defined by Coleman (1968), a simulation game is:

"a game in which certain social processes are explicitly mirrored in the structure and functioning of the game. The game is a kind of abstraction of these social processes making explicit certain of them that are ordinarily implicit in our everyday behavior (p. 30).

CHAPTER II

REVIEW OF RELATED LITERATURE AND RESEARCH

In this chapter the various subject areas which are of importance to this study are examined. The areas to be reviewed are: development and characteristics of simulations, studies related to the Life Career game, studies related to the concept of vocational maturity, and studies related to the criterion instrument chosen.

Research Related to Development and Characteristics of Simulations

Historical Development of Simulations

The first known use of games for serious purposes was in "war gaming". The harmless aspect of this was its major advantage, the others being the benefits it gave to armies in terms of research and training. Real military situations were represented and the problems of time, money, and logistics were avoided. In the nineteenth century, the German General Staff used a gaming method, and in World War II both the German and Allied troops were known to have used this method.

After World War II, the technique was applied to the business world where correct decision-making can mean the difference between financial disaster or fortune. Different decisions could be experimented with under varying conditions, and results known in several hours. Costly errors in judgment could be avoided.

Currently, serious games are being utilized for research, planning, training, and education. An example of their use in research has been in the study by governments of insurgency. Also, trans-

portation planners make numerous considerations and a game was designed for their use. Games are used in the training of military personnel for jungle warfare.

Characteristics of Educational Simulations

Recently, the use of games in the education field has widened, as it has become apparent that they have much to offer in terms of curriculum enrichment and motivation to learn. The uniqueness of games allow for dealing with complex problems in concrete ways. The desire to learn information that is relevant in the "real" world is becoming a demand students are making of educators, and serious games have one answer for that demand.

Being aware of characteristics which good educational simulations have is essential when deciding what new teaching methods to incorporate. Beck and Monroe (1969) outline four such characteristics. These include:

1. Provision of an analagous situation. Since strategies involved in the playing of a game are rather specific to it, appropriate discussion must occur so that the learning is transferable to real events outside school. As Gillespie (1972) states, the learning of the conceptual content of the game is what is important, not simply the problems the game poses.
2. Provision for low risk input. If the students see that experimentation with alternate game strategies routinely leads to undesirable consequences, learning from the game will be reduced significantly.
3. Symbolic feedback of the consequences.
4. Replicability of the gaming process.

Beck and Monroe (1969) also suggest that simulation games used in

education should have six dimensions, including:

1. Reality - Reality is developed through content, process, time, and vehicle. Content of the game and the gaming process relate to the relevance of the curriculum as the student perceives it. The time deviations which the game allows for, the contradictions or expansions, should accelerate learning. The vehicle of the game will vary from abstract symbols to the totally operative environment.

2. Complexity - The game would have various consequences for the learner, various response choices open, and constraints on time.

3. Curriculum content - Use of a game should be determined by the learning objectives, the characteristics of the learner, and the designer's intentions as to its use.

4. Availability of model design, including the model source and identity of designer.

5. Replicability - Identical trials should be allowed for one or a series of players.

6. Evaluation - The user should be concerned with the criteria of learning as measures of student achievement and efficiency of a game as a learning medium.

In her analysis and evaluation of classroom games, Gillespie (1972) suggested that the decision as to how good a game is for your purpose as an educator should be based on the strength of the game's knowledge base. All simulation games for classroom use have this base, and it is identified by asking questions concerning the choices and moves available and the organization of the game. The base is built on the problem statement, "What is the central problem presented?" Essential concepts are then transformed into rules, organized

in an effective way so players learn the basic concepts. These criteria serve the purpose of enabling the user to distinguish sound from unsound parts, and make a judgment of the game's total acceptability.

Barbara Varenhorst (1973) stated her belief that simulation games have their place in education because of the advantages they offer. They provide for experiential learning, and have built-in motivation. They provide training in intuition-building, problem solving, and social behaviors. They teach facts, plus the benefits and risks of alternative strategies of decision-making. They provide instruction for individual problems and capabilities. Peers teach each other and, according to needs and abilities, each learns different things on different levels in the same game.

Clark Abt reported on various educational simulation games, and in his book entitled Serious Games (1970), outlined the needs of the area. He suggested that evaluation of games include the concern of cost=effectiveness. This is determined by:

1. The amount of player identification which occurs.
2. The realism of the game. How much has it been sacrificed for playability?
3. The game's response to conscious decisions of players rather than chance.
4. The game's playability, which is the space, time, and materials required.
5. Clarity of design, which will be reflected by concise, clear rules and adequate preparatory material.
6. The number of players required. The game has not been adequately test-played if too many players are needed to interact, acquire

information, and make decisions affecting others.

7. A great amount of interaction, variability, role playing and uncertainty of outcomes.

Abt suggested that a game used in a school setting must also fulfill other criteria. It must accomplish the purposes it was designed for. Students should become aware of the simultaneous interaction of forces, and be able to apply the information learned.

The use of games in the educational field is still in early stages. Characteristics of educational simulations have not been fully defined, and as more research is done, characteristics which will distinguish good simulation games from mediocre ones will emerge.

Research Related to Various Simulation Games

One of the first major reviews of research dealing with simulation was done by Cleo Cherryholmes (1966). She examined findings from six simulation studies: Anderson (1964), Boocock (1963), Boocock and Coleman (1966), Cherryholmes (1966), Garvey and Seiler (1966), and Robinson, Anderson, Herman, and Snyder (1966). Cherryholmes hypothesized that simulation participants would reveal more interest, retain more facts and information, acquire more critical thinking and decision-making skills, and have significantly altered attitudes. This would be in comparison to students participating in conventional classroom activities. She found that simulations do produce more student interest and motivation but found no significant differences in learning, retention, critical thinking, or attitude change.

Boocock and Coleman (1966) discussed the values of the educational games published to that date. The games are said to bring the outside world to the child's grasp allowing for various roles to be

played. They have a motivating and self-disciplining ability. The fact that they are self-judging allows the teacher to escape from the role of the judge.

The quantity of simulation research expanded from 1966 to 1971, but, as Fletcher (1971) indicates, the quality did not improve. He criticized the research as still being in its infancy stage. These reasons were cited:

1. Lack of workable games.
2. Variations in objectives, structure, subject matter, and task complexity.
3. Lack of relationship between the structure of the game and the learning objectives.
4. Lack of standardization of administrative procedures.

Fletcher questioned the claims researchers made about the learning environment created by games, including those that a game is self-judging, that the role of the teacher changes, and that the relevance of game learning is greater than other methods.

Chartier (1972) used the game Generation Gap with undergraduate students in an introductory speech class to investigate the value of discussion to maximize the simulation's learning potential. The hypothesis was that subjects who participated in the simulation plus discussion would demonstrate more learning at cognitive and affective levels than subjects participating in a simulation with no discussion, or discussion with no simulation. Chartier administered a predisposition indicator to each subject and developed an achievement test to measure levels of cognitive learning. The only significant difference between experimental and control groups was that the subjects who par-

ticipated in the simulation plus discussion demonstrated higher learning outcomes at the cognitive level than those participating in either simulation or discussion.

Evidence that simulations generate more interest and motivation than conventional class activities has been reported by Anderson (1964), Cohen, Dill, Kuehn, and Winters (1968), Shirts and Sprague (1966), and Cohen (1969). The findings of these studies and the one by Chartier may be attributed to the Hawthorne or novelty effect produced by the newness of the method.

Wentworth (1972) attempted to determine the broad impact of a simulation by the measurement of attitudinal, cognitive, and behavioral variables during participation. He used the game Marketplace to teach introductory economics in selected colleges. To measure the cognitive and affective learning effects, an investigation of student verbal behavior before the participation was conducted. Student responses were found to be more positive, co-operative, and reinforcing as the simulation progressed. Verbal behavior showed no evidence for convergent, divergent, or evaluative thinking. No additional gains in positive attitudes toward economics or carry-over into subsequent classroom interactions were found.

Goodman (1973) enumerated the research problems associated with gaming and simulation, and suggested that the fact that learning related to games takes place during and after the game experience and this obscures the problem of doing research. Much simulation literature refers to the importance of post-game discussions. Goodman suggested that reflections on this process do not terminate when the game does. There is a need for researchers to focus on the formalized

nature of simulation exercises, so data will be produced to indicate what is actually going on as decision-making occurs. The appropriate position for simulation research to assume is described by Goodman.

"It would appear far more exciting and profitable to allow efforts to determine when (under what circumstances) gaming works with efforts to discover why it works rather than to move toward producing ever more convincing evidence that there are times when it does seem to work." (1973, p. 939)

Research Related to the Life Career Game

Sarane Boocock, the designer of Life Career, and James Coleman (1966) conducted a large-scale test of the game at a 4-H conference in Berkeley, California in 1964. They found it to be a motivating, learning experience for students. The students were noted to have acquired a feeling for the process simulated and its complexity. No attempt was made to compare the game method with other teaching methods or to control for different types of students, making the results of limited use.

Boocock (1967) reported field testing of the game in other areas including Florida, California, Pennsylvania, and Maryland. School settings were used, and she noted the most pervasive result to be the intense interest and involvement of the participants during long periods of playing time. The game appeared to be efficiently communicating factual information, but a comparison with students who were taught the same information by another method was not made. The vicarious experiences involved in the playing of the game seemed to produce both the effect of increased empathy for roles played, and an appreciation for the complexities of the decisions that lie ahead.

Boocock emphasized the versatility of the game by stating that it could be a supplement to a guidance program at a number of age levels, and fit into a social studies or home economics course.

Several researchers have examined the Life Career game's effect on learning and retention of specific information. Farran (1968) had grade eight boys at North Carolina Advancement School play the game and then he measured content learning. He used two tests: one was a self-devised knowledge and applicability test, and the other was an attitudes to learning measure created by the California Study Methods Survey. Farran hypothesized that there would be increased learning as a result of intergroup competition, compared to individual students who played the game. This hypothesis was rejected, leading him to postulate that for game learning the effect of status rewards from peers is more direct and powerful than from individual competition. He felt that one important experience the game provided was experience in strategic planning.

Barbula and Issac (1967) hypothesized that their experimental group (who played the game) would acquire more insight into the career selection process and more favorable attitudes toward vocational concepts. The test measures used were: a ten-item questionnaire adapted from Crites' Vocational Development Inventory, a three-item test measuring use of time, and an adaptation of Osgood's Semantic Differential Scale to obtain attitude ratings on various vocational concepts. No hypotheses were statistically significant, but Barbula and Issac suggest that this may be due to insensitive instrumentation.

Johnson and Euler (1972) studied the effect of Life Career on

the learning and retention of education-occupational information. An experimental and control group of students were used with pre and post-tests used to measure learning. They found the experimental group learned less educational information than the teacher-taught group, but they did retain more occupational information than the teacher-taught group.

Stevens (1973) investigated the effect of the game on occupational interests and aptitudes using the Kuder Preference Record, Vocational, Form C (KPR-V) and the Differential Aptitude Test (DAT) as pre and post-program indicators of interest and aptitude levels. He found no significant differences in the scores of the experimental group when compared to those of the control group. There were significant changes between the pre and post-test scores of the two groups on the KPR-V and significant changes in correlated scores between the KPR-V and DAT subscales.

Swails (1974) studied the effects of three approaches on the aptitude and attitude dimensions of vocational development of ninth grade students. The three group techniques used were: counseling, modeling, and the Life Career game. He found no significant differences in either attitude or competence scores between the treatment groups when Crites' Vocational Development Inventory was used.

Rhett (1974) was interested in the game's effect on autonomy and life career planning. His treatment groups were comprised of black senior high males. He hypothesized that the experimental group would show significant changes in the post-game autonomy score of the Adjective Check List, but this was rejected.

Varenhorst has used the Life Career game extensively in her work

with the Palo Alto School District in California. She reported particularly successful experiences when it was played by three specific groups: high ability students performing well below ability, Negro students (who were a minority group), and students who were average to below average achievers (Varenhorst, 1973).

Varenhorst (1963, 1968) suggested that the game would be a useful tool in group counseling in the schools as it denies resistance to involvement and discussion of problem areas. It allows the student to reveal his own problems, feelings, and values, yet he can hide behind the game's hypothetical **profile** person.

Groome (1975) used Life Career with one hundred forty-four grade eleven students from high schools in Regina, Saskatchewan. She used Crites's Career Maturity Inventory to measure the program's effectiveness in increasing the groups' vocational maturity levels. She found no increase in the maturity of the group after the simulation experience, however, the students only played for one school day, approximately four rounds per team.

The Life Career game has been used by many researchers to test various hypotheses, several dealing with the area of interest in the study to be described - the learning and retention of occupational information, and the raising of vocational maturity scores. No significant results appear to have been found, however this may be due to the shortness of the programs which were run. The game's designer suggests that at least eight rounds of play should occur for its full potential to be realized, so it is conceivable that this is the reason why the results found have not been significant.

Research Related to Vocational Maturity and Decision-Making

Vocational decision-making has been seen as a process by several authors. Gelatt (1962) called it a cyclic process, as the initial decision creates a new one which, when acted upon, leads to another decision. He believed it to be an interactional process between the decisions of the immediate, intermediate, and distant future. Super (1960) saw vocational decisions to be a series of related behaviors rather than a limited number of discrete acts. The developmental process was seen as a continuing one with the ability to perform new behavioral acts largely dependent on capabilities for behaviors which have already been developed.

By the end of high School years, the first of a series of decisions will be acted upon, although the process of deciding "what" to do has been ongoing for years. Numerous researchers have noted important influences which have some effect on the vocational decisions made by an individual. Barker (1972, p. 14) stated that the student makes choices for the future in accordance with his perceptions of the reference groups whose influences are exerted through the relationships built up with them. Barker's research found parental influence on choice to be significant. He also found that the parent's socio-economic status and the home's location influenced choice. More urban than rural students aspired to continue their education. Within the rural setting, Slocum (1968) found that rural girls had plans similar to city girls', whereas the rural males' plans did not correspond to city males' plans. Keoyote (1971) found a positive correlation between socio-economic status and a choice of furthering studies at a university. The higher the status, the higher

the incidence of a university choice being made.

Hollender (1971) found that intellectual ability (assessed by scholastic aptitude measurements) influenced the vocational decisiveness for both males and females. A willingness to verbalize a personal vocational decision was correlated with intellectual ability.

Malik (1971) saw decision-making as being influenced by the nature and scope of the problems being faced by the individual in the past. The ability to make a choice will depend on the various strategies he has employed to solve earlier problems. Ability to choose, therefore, is different for each individual. Differences in child rearing, schooling methods, and the absence or presence of appropriate environmental models, as well as the previously mentioned intellectual ability, value systems, will all have a certain degree of influence on the decision that is made.

Tiedeman and Field (1968) saw a relationship between career decision-making and personality. Personality differences can be discussed in terms of the particular pattern of alternate future situations which various individuals have predicted and chosen to pursue above all else. Choices can be predicted from the personality characteristics as revealed by sex role and family role identification, and self concept. Osipow, Wall, and Ashby (1966) also believed that personality affects choice. They predicted that subjects would express occupational preferences consistent with their major personality orientation. Research results supported their prediction.

Korman (1966) reported another influence on vocational choice, that being self-esteem, as reported by clients. The individuals with high self-esteem (characterized by a sense of personal adequacy)

made vocational choices congruent to self-perceived characteristics. His 1969 study found that the "high self-esteem individuals were more likely to seek self-fulfillment in the realm of occupational behavior than were those with low self-esteem." (p. 192)

Anyone preparing to make a vocational decision has certain needs which, when fulfilled, enable him to make a choice. The individual must have occupational information in order to reach that point. Clarke, Gelatt, and Levine (1965, p. 41) said a decision maker needed adequate vocational information relevant to him and organized in such a way that it may be used effectively. An individual also needed information on alternative actions, and the possible outcomes of these various actions. The relationship between actions and outcomes ought to be studied and the individual should have a preference in mind for the outcomes.

Gelatt, (1962) believed that a decision will be made only when a willingness is shown to accept responsibility for the consequences of an action. Marr (1965; p. 405) said a decision maker needed an adequate role model to learn healthy ways of dealing with life and the problems he will be faced with solving.

Cover (1969) studied the relevance of vocational maturity to career decision-making. The results indicated that it was related to an ability to make post-high school decisions, the belief that events have meaning, and the feeling that events can be controlled. Dilley (1965) studied high school seniors and found vocational maturity to reflect an increase in planning activities, the acceptance of responsibility, and a general concern about the making of good decisions.

The Career Development Inventory

There is a definite lack of research available on the use and effectiveness of the Career Development Inventory (CDI). What does exist is discussion of the instrument as one which follows the theoretical concepts of Super on vocational maturity, found in his book on the maturity of ninth grade boys (1960) and in his later writings. Several authors discuss the use of the CDI as an evaluatory measure of vocational programs, but no research has as yet been published in which the CDI High School Form III (devised in August of 1976 as an expansion of Form I) was used.

LoCascio (1974) discussed the instrument's development from the beginnings of the Career Pattern Study to its 1971 appearance as a separate measure of vocational maturity.

Hilton (1974) evaluated the CDI and other vocational maturity measures by classifying the item content of the inventory into the areas of self-awareness, educational awareness, career awareness, decision-making, beginning competency, and employability skills. He found the emphasis of the CDI to fall between career awareness and decision-making. Hilton suggested the use of the CDI as an evaluatory measure of any vocational program whose objectives include the development of skills in vocational exploration and in decision-making, developing awareness of available options, and the need to plan.

Jordaan (1974) reviewed the CDI as an instrument to measure vocational maturity, discussing its use as a diagnostic tool for counselors. He presented several student profiles of results from the Inventory and suggested how the results might be interpreted to the

student. The advantages of using a theoretically derived vocational maturity measure are that it allows the counselor to direct and focus inquiry, to organize observations, to assess a client's needs, problems, and possibilities, and to formulate counseling objectives and procedures.

Super (1974) reviewed the material obtained on vocational maturity and concluded that the CDI is worthy of use by the counselors as a means of assessing a student's readiness for exploration, trial experiences, and decision-making.

Arni (1976) used the CDI High School Form I as the pre and post-test measure to evaluate his Vocational Exploration Unit. His criterion for the program's success was an increase in the post-test scores showing that the vocational maturity level of the students had increased, in comparison to to the control group's change in scores.

It is obvious that more research on the CDI needs to be done. Although studies on the instrument's reliability and validity have been reported (Forrest, 1971), its use as a measure to evaluate vocational programs has not been widespread., yet it appears that the very thing the instrument was designed for was program evaluation. Researchers should be encouraged to use this measure, possibly one of several instruments to be used, so more empirical data can be presented, and its use justified.

Summary

Although games have existed for many years, serious games to be used in field of education have only recently been developed. When a game can be developed which fulfills the criteria demanded of it

by educators, advantages it has over other teaching methods will be noted. Specifically, these advantages are: the game's ability to sustain a high degree of interest and motivation in the students, the shared learning and teaching among peers, and the provision of individual need satisfaction. Currently, many research problems exist in the simulation field as learning does not appear to end with the close of game playing activity, and ways of measuring this learning and retention must be developed.

The Life Career game, developed by Sarane Boocock, is one simulation game which has fulfilled the criteria demanded of an educational game. Various researchers report success with it at the high school level when used as an aid to the dispensing of occupational information.

The concept of vocational maturity was discussed as it related to high school students. It was seen to be comprised of many variables and influenced by several factors. Several measures of vocational maturity have been developed, including the Career Development Inventory, the criterion instrument chosen for use in this study.

CHAPTER III

PROCEDURE AND DESIGN

The Hypothesis

The aim of this study was to test the hypothesis that the Life Career game participants would show significantly higher scores on the post-test of the Career Development Inventory High School Form III than the control group.

The Collection of Data

The author obtained permission from the St. Albert Protestant Separate School District #6 to have high school students from two classes of Psychology 20 at Paul Kane High School participate in the study. St. Albert is a city of 25,000 people, situated five miles north of Edmonton, Alberta. The city is comprised of mainly middle class families with many adults employed in professional occupations. In the majority of families, both parents are employed.

Population and Sample of the Study

The sample of grade eleven students who were involved in the project were drawn from a total school population of 1,050 with the grade eleven population being 310. The experimental group was comprised of twenty males and twenty-five females registered in the second semester of a Psychology 20 option class. The control group was comprised of fourteen males and twenty-four females registered in the second semester of a Sociology 20 class. All students were registered as being in the eleventh grade.

The age of the students ranged from 16 to 18. Table I gives the ages of the girls and boys in each group.

TABLE I
DISTRIBUTION BY AGE OF SUBJECTS

<u>EXPERIMENTAL GROUP</u>					
<u>SEX</u>	<u>AGE:</u>	<u>16</u>	<u>17</u>	<u>18</u>	<u>TOTAL</u>
MALES		11	7	2	20
FEMALES		13	12	0	25
<u>CONTROL GROUP</u>					
MALES		4	8	2	14
FEMALES		10	14	0	<u>24</u>
					83

The male groups have a wider age range, but the groups are almost evenly distributed at the sixteen and seventeen year age level.

Procedures of Experiment

A trial run of the game playing, including rule explanation and scoring, was done so that the appropriateness of the game for the experimental group could be determined. Two weeks before the program was to begin, a team of four male grade eleven students played the game during lunch hour for five consecutive school days. The explanation of the rules was standardized for future use with the experimental group, and any problems which became apparent as the game progressed were dealt with in these practice sessions.

The experiment was conducted at Paul Kane High School in St. Albert by the author, with the aid of two teachers of Psychology, one being the school's counselor, the other a teacher of Psychology and History. The

program ran from April 18th til May 6th, 1977, inclusive. All subjects in the experimental and control groups completed the pre-test, the Career Development Inventory, High School Form III, on the same day during class time. Both groups were given the same information regarding the testing: the inventory was not a test as you could not pass or fail, and the results are helpful to both the counselors and the students as they give an indication of the level of the vocational maturity reached. The concept of vocational maturity was defined for the groups.

The students in the experimental group had not completed any unit thus far on vocational planning, so it was assumed that any prior information they had was obtained from contacts with counselors, parents, siblings, friends, or through work experience.

The Life Career game was introduced to them on the second day as the first activity in a unit of vocational planning which they would study in their daily class of fifty minutes. The students were then requested to form groups of three. No attempt was made to divide the subjects into groups according to their level of vocational development, sex, or aptitude. Several groups of four and of two were formed as the class sizes were uneven. Folders were passed out which contained copies of the information needed to play the game. Each group used the same folder throughout the playing, as it contained all the information sheets compiled during rounds of play. The game's rules were discussed by the author and questions answered. The following day, game playing began. At all times, the author and teacher of the class were present to answer questions and act as scorers. At the end of each round, the score would be calculated and an Unplanned Events card picked, then the score would be recorded on a sheet in the room.

Playing proceeded for thirteen consecutive school days, with fifty minutes per day being the playing time allotted. On the fourteenth day, the group discussions were held, as everyone had completed at least eight rounds of the game. The students divided into four groups, each comprised of those who had been working with the same profile person. Each of the four groups studied the decisions they had made for their person, and compared the results of those decisions. One member from each group was asked to report to the whole class.

The students were then asked to complete a questionnaire which asked them questions on specific pieces of information which the author felt were taught by the game. The last question, and the one whose results were analyzed, dealt with their personal feelings about the game experience and the information presented. They were asked to describe what they had learned and to comment on the game's effectiveness as a teaching tool. Suggestions for changes in the game were requested. The questionnaires were completed out of class and returned the following day.

The post-test, the Career Development Inventory Form III, was written by the experimental and control groups the same day in class time, one day after the program was completed.

Description of the Life Career Game

The Life Career game was developed by Sarane S. Boocock while she was working at the John Hopkin's University with the Department of Social Relations. It was published by the Western Publishing Company in 1966, and is currently available through their School and Library Division. Boocock (1967) discussed the essentials of the game, the rules and procedures of the game, and results she has com-

piled through field testing. The game simulates several aspects of the labor market, the education market, and the marriage market, as they exist in the United States. The objectives of the game are : to give youth a feeling for the future, to give accurate information regarding life career alternatives, a sense of how a life cycle is patterned, and practice and skill in decision-making.

The game can be played by any number of teams of two to four players. Teams work with a profile of one fictitious person: four are given to choose from. Two are males, and two are females, each with different educational, sociability, and family role characteristics. Playing proceeds in rounds, each representing one year in the life of this person. A schedule of that person's activities for one week is planned. Time is allotted to school, studying, home responsibilities, a job, and leisure. Since most activities require a certain investment of time, training, and money, a person cannot engage in all the activities. The player's problem is to choose a combination of activities which maximizes their person's satisfaction and chances for a good future. For certain activities, including getting a job and higher education, applications must be accepted.

After players make their decisions for a year and have filled out a Schedule Form and a Record Sheet, scores are computed for each of the four areas - education, occupation, family, and leisure. Calculators use a set of tables and spinners, based on United States Census and survey data that indicate the probabilities of events occurring taking into account personal characteristics, past experiences, and present efforts. A chance factor is built in through the use of spinners and dice.

The game runs for a designated number of rounds, and the team with the highest score wins.

In this experiment, the game was revised slightly so it would better suit the Western Canadian scene. These changes included:

1. Use of the school's handbook of courses available at the high school level, in place of the school courses catalogue provided in the game kit.

2. Conversion from the American credit system to Alberta's system, which is based on credits given for a specified number of classroom hours. The requirements for a grade twelve diploma in Alberta are: 100 credits, pluss passing grades in specific courses as outlined by the Alberta Department of Education.

3. Use of University of Alberta calendars for course selection and admission requirements.

Description of Criterion Instrument

The Career Development Inventory is a self-administering paper-and pencil inventory for the measurement of vocational maturity. The first version, High School Form I, was developed in 1971, and since then, other versions have been developed. At present, there are three versions: High School Form I and III, College Form, and Adult Form. Form III of the High School version, used in this study, was devised in August of 1976, using items from Form I. It has six scales, these being:

1. Planning
2. Use of Resources

3. Career Decision-Making
4. Career Information
5. World of Work Information
6. Information about Preferred Occupation

The Form III requires about eighty minutes to complete.

The Career Development Inventory is completed, but not yet published. Development of adaptations and standardization work is underway in Brazil, Canada, England, France, Japan, Yugoslavia, the Netherlands, Poland, Portugal, Spain, Sweden, and Switzerland.

The creators of this measure include: Donald E. Super, David J. Forrest, Jean Pierre Jordaan, Richard H. Lindeman, Roger A. Myers, and Albert S. Thompson.

Development of Career Development Inventory

The beginnings of the CDI go back to the Career Pattern Study undertaken by the counseling psychology doctoral students and staff of Teacher's College at Columbia University to conceptualize the vocational maturity construct. A set of twenty indices hypothesized to constitute vocational maturity were developed. Data from 105 male 1951-52 ninth graders in Middletown, New York were analyzed. Intercorrelations of the twenty indices yielded six which were considered adequate measures of vocational maturity. Further factor analysis yielded four factors which defined vocational maturity as planning and looking ahead. The sample included socio-economically heterogeneous white and black students, white middle class students comprising the majority.

Forrest (1971) reported that a 267 item instrument from which the CDI eventually emerged was devised, including items from the 87 item Student Questionnaire (Thompson, Lindeman, Clack, Bohn, 1970). and successful items from the Career Pattern Study. A pilot study was conducted on sixty students in two sophomore English classes in Flint, Michigan in September of 1970, resulting in a revised 216 item, 13 scale instrument, the Career Questionnaire. This group of students were participating in the Educational and Career Exploration System, developed as a project of the Advanced Systems Development Division of IBM. The project was undertaken in the Genesee County Schools.

The Career Questionnaire was administered to a sample of 100 male and 100 female sophomores in the Flint, Michigan school system. Factor analysis yielded 93 items, reduced to 91, the Career Development Inventory. The inventory was then administered to a second group of 100 male and 100 female tenth graders, and the data was combined with the original standardization group to form norming groups.

Reliability

The test-retest method was used to measure response consistency. 82 tenth graders from four schools took the test a second time at intervals varying from two to four weeks. Reliabilities, as reported in the Preliminary Manual for Form I (Super and Forrest, 1972) for the three scales and total score were .85, .82, .71, and .87.

To measure stability, the CDI was administered in the late fall and again in May to the tenth graders. Coefficients of stability of scale scores range from .63 to .71.

Validity

Content Validity

The item content of the three factor-analytic derived CDI scales gave basis for the scale definitions and names. Scales A (Planning Orientation) and B (Resources for Exploration) were selected by the team of authors from theoretically derived and empirically refined scales used in previous studies. The decision-making and information items in Scale C were selected from items created for the earlier version and refined for psychometric and conceptual adequacy.

Criterion Related Validity

As vocational maturity is an age-related developmental variable, one relevant validity indicator is increase with age and experience. Scores should be stable over short time periods, but increase across age groups. Grade and age differences in CDI scores were studied by giving it to groups in the tenth and twelfth grades, in a high school and an eighth grade junior high group. A significant increase in scores across grade levels for the scales was found when a one-way analysis of variance was performed.

Construct Validity

Forrest (1971) reported that this was studied by examination of the relationship of the scales to four relevant, but not necessarily

causal variables:

1. Rating of socio-economic level of father's occupation
2. Rating of student's vocational preference level
3. Grade point average for grade nine courses
4. Aptitude

These variables were correlated with CDI scores for 200 male and female tenth graders. Most correlations were statistically significant, but low. (Refer to the tables in Forrest, 1974, p. 59)

As there is no established measure of vocational maturity, it is difficult to compare the CDI to tests known to assess it. Forrest (1971), reported a comparison to the Career Maturity Inventory (Crites, 1965), Readiness for Career Planning Scale (Gribbons and Lohnes, 1969), and the Cognitive Vocational Maturity Test (Westbrook, 1967). High correlations of the two attitudinal scales and the cognitive scale of the CDI and the RCP scale were found plus a strong relationship between the cognitive scale and the CMVT.

The Career Development Inventory High School Form III was chosen as the criterion instrument for this study because of the following reasons:

1. It was developed by Donald E. Super, whose ideas on vocational guidance and vocational maturity form the theoretical base of this study.
2. Various aspects of vocational maturity are covered by the CDI - planning, resource usage, career information, and decision-making.
3. It is an instrument which can be administered efficiently to groups of students in eighty minutes, making it appropriate for use

in high schools where most class periods are of this length.

Statistical Treatment

The statistical analysis used was the three-way analysis of variance (Group X Sex X Testing). For both groups, pre and post-test total scores were analyzed, as well as the pre and post-test scores of the six subscales.

CHAPTER IV

ANALYSIS AND FINDINGS

In this chapter the statistical analysis and findings of this study are presented. The discussion will center around the analysis used and proceed to examine the hypotheses and other findings.

Statistical Analysis

The purpose of the study was to examine the effects the Life Career game had on increasing the vocational maturity of the students involved in the program. The Career Development Inventory High School Form III was the criteria instrument used and scores on a pre and post-test which both the experimental and control groups took were obtained. The Inventory which was administered provided scores on six subscales plus a total test score.

The analysis used involved comparison of pre and post-test mean scores for each group and computation of three-way analysis of variance. Three variables were considered to be in need of examination and are listed below.

1. Variable A - Treatment Effect

Level I - Experimental

Level II - Control

2. Variable B - Sex of Subjects

Level I - Female

Level II - Male

3. Variable C - Test Scores on Criteria Measure

Level I - Pre-test

Level II - Post-test

The mean pre and post-test total scores of both the experimental and control groups are shown in Figure I. The total test scores are analyzed in Table 2, and in Tables 3 to 8 the six subscales of the CDI are analyzed.

The central question of this thesis deals with the effect of the treatment condition (the playing of Life Career) on the scores of the CDI. The following statistical hypotheses were generated in an attempt to answer this question.

Statistical Hypotheses

1. The Life Career game was designed to present vocational information and provide for experiences in decision-making skills. The students who experienced the program would be expected to achieve higher scores on a test to measure vocational maturity than those who experienced no such program.

Therefore, Hypothesis #1 states that there will be a significant main effect for treatment shown on the total test scores for the CDI.

2. No studies have been reported which have investigated the possibility of the CDI being a sex-biased instrument. The author, being interested in this issue, set out to have this concern answered.

Therefore, Hypothesis #2 states that there will be no significant main effect for sex on the total scores of the CDI as examination of the test does not reveal sex-biased items.

3. A learning effect appears to occur on vocational maturity tests, as evidenced by increases on post-test scores. This may be due to both discussion among students after the pre-testing situation

and retention of information gained through the taking of the pre-test.

Therefore, Hypothesis #3 states that pre and post-test score differences will show statistical significance for both groups.

Statistical Findings

1. Pre-test means between the experimental and control groups were not significant ($t = .14$; $df = 81$; $p > .20$), suggesting that the two groups were similar in their responses to the CDI. Following the experiment, however, significant main treatment effects were obtained ($F = 73.17$; $df = 1, 75$; $p < .00001$). These results indicate that whereas the experimental and control groups were similar in their initial performance on the CDI, the treatment condition had a significant effect on the post-test scores of the experimental group (Table 2).

2. No significant main effect for sex was obtained and, as well, there were no interaction effects. This suggests that the difference in pre and post-test scores was a function of the treatment procedures.

3. Analysis of the data (Table 2) indicates that pre and post-test total score differences were statistically significant ($F = 12.43$; $df = 1, 75$; $p = .0007$).

The results indicate that the treatment had an effect on the scores obtained on the CDI for the experimental group.

Other Findings

Data from the six subscales of the CDI were analyzed by means of a three-way analysis of variance (Group X Sex X Testing), the results

FIGURE I
MEANS FOR EXPERIMENTAL AND CONTROL GROUPS
ON THE CAREER DEVELOPMENT INVENTORY

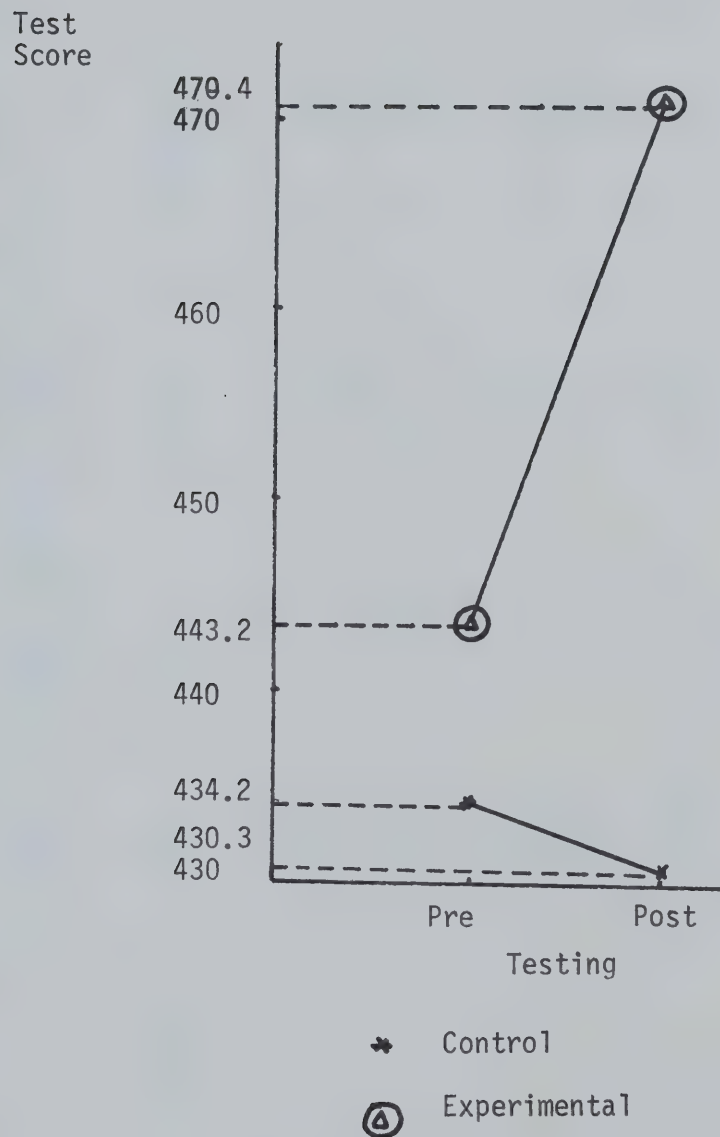


TABLE 2
ANALYSIS OF VARIANCE OF EFFECTS OF GROUP, SEX, AND TESTING
ON CAREER DEVELOPMENT INVENTORY TOTAL TEST SCORES

<u>Source of Variance</u>	<u>MS</u>	<u>Df</u>	<u>F-Ratio</u>	<u>Probability</u>
Group (A)	23849.8	1, 75	12.43	.0007 **
Sex (B)	6.76	1, 75	.0035	.95
Testing (C)	140395.0	1, 75	73.17	.0000 **
A X B	182.36	1, 75	.095	.76
B X C	45.76	1, 75	.023	.88
A X C	715.02	1, 75	.373	.54
A X B X C	169.89	1, 75	.089	.76

**indicates $p < .01$

TABLE 3
ANALYSIS OF VARIANCE ON SUBSCALE I "PLANNING"
OF THE CAREER DEVELOPMENT INVENTORY

<u>Source of Variance</u>	<u>MS</u>	<u>Df</u>	<u>F-Ratio</u>	<u>Probability</u>
Group (A)	706.66	1, 75	3.16	.079
Sex (B)	858.54	1, 75	3.84	.054
Testing (C)	17497.3	1, 75	78.22	.0000 **
A X B	17.43	1, 75	.07	.78
B X C	249.57	1, 75	1.12	.29
A X C	11.8	1, 75	.05	.81
A X B X C	54.29	1, 75	.24	.62

** p < .01

TABLE 4
ANALYSIS OF VARIANCE ON SUBSCALE II "USE OF RESOURCES"
OF THE CAREER DEVELOPMENT INVENTORY

<u>Source of Variance</u>	<u>MS</u>	<u>Df</u>	<u>F-Ratio</u>	<u>Probability</u>
Group (A)	15354.2	1, 75	13.97	.0003 **
Sex (B)	125.49	1, 75	.114	.74
Testing (C)	72490.8	1, 75	65.96	.0000 **
A X B	204.07	1, 75	.186	.67
B X C	94.98	1, 75	.086	.77
A X C	1.23	1, 75	.001	.97
A X B X C	1327.4	1, 75	1.21	.28

** p < .01

TABLE 5
ANALYSIS OF VARIANCE ON SUBSCALE III "CAREER DECISION-MAKING"
OF THE CAREER DEVELOPMENT INVENTORY

<u>Source of Variance</u>	<u>MS</u>	<u>Df</u>	<u>F-Ratio</u>	<u>Probability</u>
Group (A)	106953.0	1, 75	1.39	.24
Sex (B)	120435.0	1, 75	1.56	.21
Testing (C)	6322.4	1, 75	.08	.78
A X B	527605.0	1, 75	6.85	.01 *
B X C	45037.5	1, 75	.58	.45
A X C	63986.8	1, 75	.83	.36
A X B X C	21516.8	1, 75	.28	.59

* $p < .05$

TABLE 6

ANALYSIS OF VARIANCE ON SUBSCALE IV "CAREER INFORMATION"

OF THE CAREER DEVELOPMENT INVENTORY

<u>Source of Variance</u>	<u>MS</u>	<u>Df</u>	<u>F-Ratio</u>	<u>Probability</u>
Group (A)	153.57	1, 75	12.15	.0008 **
Sex (B)	262.08	1, 75	20.73	.0000 **
Testing (C)	647.32	1, 75	51.21	.0000 **
A X B	7.98	1, 75	.63	.43
B X C	77.78	1, 75	6.15	.01 *
A X C	241.43	1, 75	19.11	.0000 **
A X B X C	17.53	1, 75	1.39	.24

* p < .05

** p < .01

TABLE 7
ANALYSIS OF VARIANCE ON SUBSCALE V "WORK INFORMATION"
OF THE CAREER DEVELOPMENT INVENTORY

<u>Source of Variance</u>	<u>MS</u>	<u>Df</u>	<u>F-Ratio</u>	<u>Probability</u>
Group (A)	.003	1, 75	.0002	.99
Sex (B)	71.23	1, 75	3.82	.05
Testing (C)	275.49	1, 75	14.77	.0003 **
A X B	1.35	1, 75	.07	.79
B X C	11.61	1, 75	.62	.43
A X C	20.67	1, 75	1.11	.29
A X B X C	2.46	1, 75	.13	.72

** $p < .01$

TABLE 8
ANALYSIS OF VARIANCE ON SUBSCALE VI "PREFERRED OCCUPATION INFORMATION"
OF THE CAREER DEVELOPMENT INVENTORY

<u>Source of Variance</u>	<u>MS</u>	<u>Df</u>	<u>F-Ratio</u>	<u>Probability</u>
Group (A)	49.28	1, 75	3.13	.08
Sex (B)	.74	1, 75	.05	.83
Testing (C)	391.59	1, 75	24.85	.0000 **
A X B	39.18	1, 75	2.49	.12
B X C	1.09	1, 75	.07	.79
A X C	7.12	1, 75	.45	.50
A X B X C	12.75	1, 75	.81	.37

** $p < .01$

of which appear in Tables 3 to 8. The discussion of these results follows.

An examination of Subscale I "Planning" (Table 3) revealed a significant main testing effect ($F = 78.22$; $df = 1, 75$; $p < .00001$).

Analysis of Subscale II "Use of Resources" (Table 4) revealed a significant treatment effect ($F = 65.96$; $df = 1, 75$; $p < .00001$).

Analysis of Subscale III "Career Decision-Making" (Table 5) revealed an interaction effect between treatment and sex ($F = 6.85$; $df = 1, 75$; $p = .01$).

Several significant main effects were found in Subscale IV "Career Information" (Table 6). A significant treatment effect was found ($F = 51.21$; $df = 1, 75$; $p < .00001$). A significant main effect for sex was found ($F = 20.73$; $df = 1, 75$; $p < .00001$). Significant interaction effects were found: between treatment and testing ($F = 19.1$; $df = 1, 75$; $p < .00001$) and between sex and testing ($F = 6.15$; $df = 1, 75$; $p = .01$).

An examination of Subscale V "Work Information" (Table 7) revealed that there was a significant main testing effect ($F = 14.77$; $df = 1, 75$; $p = .0003$).

On Subscale VI "Preferred Occupation Information" (Table 8) a significant main testing effect was found ($F = 24.85$; $df = 1, 75$; $p < .00001$).

Questionnaire Data: Upon completion of the Life Career game program, participants were asked to complete an evaluation of their experience. The question asked of them was:

"Give your personal evaluation of this game, describing your personal experience with it, the specific portions you would change, and those you would keep, giving reasons for the decisions."

Written answers were collected by the author and comments on the specific positive and negative aspects of the game recorded in Appendix B. The simulation game appeared to be an enjoyable learning experience for the students.

Summary of the Results

A three-way analysis of variance (Group X Sex X Testing) was performed on the total test scores of the ~~eighty-three~~ subjects. The .05 level of significance was deemed necessary for the rejection of the hypotheses.

The results may be summarized as follows:

1. There is no significant difference between groups on pre-test scores.
2. The experimental group's post-test total score on the CDI is significantly higher than the score of the control group.
3. Pre and post-test total test scores on the CDI are significantly different over both groups.
4. There is no significant difference between male and female total test scores on the CDI.

The results indicate that the treatment (playing the Life Career Game) had an effect on the scores obtained by the experimental group.

The three-way analysis of variance (Group X Sex X Testing) was performed on each of the six subscales of the CDI and the results may be summarized as follows:

1. On Subscale I "Planning", there is a significant main effect for testing.
2. On Subscale II "Use of Resources", there is a significant

main treatment effect.

3. On Subscale III "Career Decision-Making", an interaction effect was found between treatment and sex.

4. On Subscale IV "Career Information", there are significant main effects for treatment and for sex. Interaction effects were found between treatment and testing, and between sex and testing.

5. On Subscale V "Work Information", there is a significant main testing effect.

6. On Subscale VI "Preferred Occupation Information", there is a significant main testing effect.

The questionnaire distributed to the participants in the experimental group asked for their personal evaluation of the game and experience with it. Specific comments and criticisms appear in Appendix B. The sessions with Life Career appear to have been enjoyed and were considered learning experiences.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

The purpose of this study was to investigate the use of the Life Career game as a tool to aid in the teaching of skills involved in vocational decision-making. In order to field test this game, forty-five grade eleven students participated in playing it for a period of thirteen fifty-minute periods. The assessment of change in vocational maturity was made by using the Career Development Inventory High School Form III as the pre and post-test measure. The scores of the experimental group were compared to those obtained by the thirty-eight grade eleven members of the control group who did not participate in game playing. The following conclusions were reached by an analysis of scores obtained.

Conclusions

It seems evident that the Life Career game is an effective tool to use in the teaching of vocational decision-making skills. A comparison of mean total scores for each group at the time of the pre-test found the difference between the control and experimental group to be insignificant.

However, the three-way analysis of variance revealed that significant increases in the post-test total scores were obtained by the experimental group.

Further investigation of the results from each of the six subscales of the CDI revealed some interesting findings. Only Subscale II "Use of Resources" and Subscale IV "Career Information" revealed

significant differences between groups in post-test scores. This leads to the conclusion that these two areas are ones which the game stresses over other possible areas such as: planning for a career, general work information, or preferred work information.

The questionnaire responses of the experimental group indicated that participation in the playing of Life Career was an enjoyable experience, and one which provided many insights into the complexity of future planning coupled with the flexibility required of them in their planning. Numerous suggestions were made as to how the game might be improved so as to better suit the Western Canadian scene and the reality of current situations in terms of the expected salaries and available jobs. These suggestions indicated that much thought was given to future planning throughout the eight rounds of play. (See Appendix B for comments.)

Group behavior was noted by the author throughout the sessions. The questions asked of the leaders involved increased in number and complexity as the playing continued. Interest in the activity remained at a high level, and it appeared that their motivation to perform well on the post-test was higher than that shown by the control group. That is, the interest in the subject continued on into the testing situation.

Suggestions made by participants indicated that for optimal effectiveness the game should undergo revisions appropriate for the area where it will be used. For example: the course guide and college calendars for the high school and colleges in the immediate area would be more appropriately used than those booklets provided for in the game kit.

The game appeared to provide a learning situation, one in which vocational information is presented and further exploration of career planning through the use of other resources is encouraged.

Implications for Further Research

In terms of further research, the following implications exist:

1. A larger sample of high school students drawn randomly from the total population should be studied to determine whether the findings from this study are general.

2. The criterion instrument used to test for changes in vocational maturity, the Career Development Inventory High School Form III, should undergo further use in program evaluation so its reliability and validity can be compared to other instruments currently available.

3. The results of a program where only the Life Career is used, as in this study, should be compared to one in which other methods are used to communicate the same information. Other methods might include the use of films, lectures, and speakers employed in various occupations.

4. The Use of Life Career should be teamed with the use of other tools such as films and lectures, with the results obtained compared to those when only the game is played.

Summary Statement

Programs such as this should be incorporated into the high school to a greater degree. As has been mentioned, Life Career could be used

in a variety of classrooms with revisions having to be made only in the introduction to the class of the purpose of its use. This would involve the staff and students in the processes of future planning, while taking a great workload off the counselor who now becomes more available as a resource person to provide specific information regarding vocations. The counselor also has more time available to work with students in resolving personal issues.

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APPENDIX A

Copies of Career Development Inventory
High School Form III, Booklets I and II

CAREER DEVELOPMENT INVENTORY
Junior and Senior High School Form III, Modular

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Jean Pierre Jordaan

Donald E. Super
and
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Roger A. Myers
Albert S. Thompson

Teachers College, Columbia University
New York, New York
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PARTS I,II,III

Introduction

The questions you are about to read ask you about school, work, your future career, and some of the plans you may have made. Answers to questions like these can help you see what kind of help may be useful to you in planning and preparing for a job after graduation, for vocational and technical school training, or for going to college and then pursuing an occupational career.

How to Answer

All your answers to the Career Development Inventory go on the special answer sheet. Do not write your answers in the Booklet. Remove the Answer Sheet (last page) from the Booklet.

ANSWER ALL QUESTIONS. If you are not sure about an answer, guess. There is no set time limit, but work as rapidly as you can; the first answer that comes to you is often the best one.

The First Step

Some of the questions concern the kind of work you would like to do when you complete your education. At this stage, you probably have not definitely decided on a specific occupation but you probably can pick out a field of work you are considering.

To help you do this, we have included an Occupational Group Preference Form, found on the back of the Answer Sheet. Follow the instructions at the top of that form and select one of the Occupational Groups (A to T).

The Next Step

Fill in all the information at the top of the Answer Sheet, including the letter of the Occupational Group you have selected.

TURN THE PAGE TO THE QUESTIONS AND BEGIN.

PART I. PLANNING. Choose the one best answer, to each question, that best tells what you have done.

How much thinking and planning have you done in the following areas?

1. Finding out about educational and job possibilities by going to the library, sending away for information, or talking to somebody who knows about the possibilities. I have
 1. not given any thought to doing this.
 2. given some thought to this, but haven't made any plans yet.
 3. some plans, but am still not sure of them.
 4. made definite plans, but don't know how to carry them out.
 5. made definite plans, and know what to do to carry them out.
2. Talking about career plans with an adult who knows something about me. I have
 1. not given any thought to doing this.
 2. given some thought to this, but have no plans to do this yet.
 3. some plans to do this, but am still not sure of them.
 4. made definite plans to do this, but don't know how.
 5. made definite plans to do this, and know what to do.
3. Taking classes that will help me decide what line of work to go into when I leave school or college. I have
 1. not given any thought to doing this.
 2. given some thought to this, but have no plans to do this yet.
 3. some plans, but am still not sure of them.
 4. made definite plans, but don't know how to carry them out.
 5. made definite plans, and know what to do to carry them out.
4. Taking classes which will help me in college, in job training, or on the job. I have
 1. not given any thought to doing this.
 2. given some thought to this, but have no plans to do this yet.
 3. some plans, but am still not sure of them.
 4. made definite plans, but don't know how to carry them out.
 5. made definite plans, and know what to do to carry them out.
5. Taking part in school or out-of-school activities that will help me in college, in job training, or on the job. I have
 1. not given any thought to doing this.
 2. given some thought to this, but have no plans to do this yet.
 3. some plans, but am still not sure of them.
 4. made definite plans, but don't know how to carry them out.
 5. made definite plans, and know what to do to carry them out.

CONTINUE. Choose the one best answer to each question.

How much thinking and planning have you done in the following areas?

6. Taking part in school or out-of-school activities (for example, science club, school newspaper, volunteer nurse's aide) which will help me decide what kind of work to go into when I leave school. I have
 1. not given any thought to this.
 2. given some thought to this, but haven't made any plans yet.
 3. some plans, but am still not sure of them.
 4. made definite plans, but don't know how to carry them out.
 5. made definite plans, and know what to do to carry them out.
7. Getting a part-time or summer job which will help me decide what kind of work I might go into. I have
 1. not given any thought to this.
 2. given some thought to this, but haven't made any plans yet.
 3. some plans, but am still not sure of them.
 4. made definite plans, but don't know how to carry them out.
 5. made definite plans, and know what to do to carry them out.
8. Getting money for college or job training. I have
 1. not given any thought to this.
 2. given some thought to this, but haven't made any plans yet.
 3. some plans, but am still not sure of them.
 4. made definite plans, but don't know how to carry them out.
 5. made definite plans, and know what to do to carry them out.
9. Working out problems that might make it hard for me to get the kind of training or the kind of work I would like. I have
 1. not given any thought to this.
 2. given some thought to this, but haven't made any plans yet.
 3. some plans, but am still not sure of them.
 4. made definite plans, but don't know how to carry them out.
 5. made definite plans, and know what to do to carry them out.
10. Getting the kind of training, education, or experience I will need to get the kind of work I want. I have
 1. not given any thought to this.
 2. given some thought to this, but haven't made any plans yet.
 3. some plans, but am still not sure of them.
 4. made definite plans, but don't know how to carry them out.
 5. made definite plans, and know what to do to carry them out.
11. Getting a job once I have finished my education or training. I have
 1. not given any thought to this.
 2. given some thought to this, but haven't made any plans yet.
 3. some plans, but am still not sure of them.
 4. made definite plans, but don't know how to carry them out.
 5. made definite plans, and know what to do to carry them out.

CONTINUE. Choose the one best answer to each question.

How much thinking and planning have you done in the following areas?

12. Doing things that will help me be a good worker, one who is most likely to be sure of a job. I have

1. not given any thought to this.
2. given some thought to this, but haven't made any plans yet.
3. some plans, but am still not sure of them.
4. made definite plans, but don't know how to carry them out.
5. made definite plans, and know what to do to carry them out.

13. Getting ahead (more money, promotions, etc.) in the work I choose. I have

1. not given any thought to this.
2. given some thought to this, but haven't made any plans yet.
3. some plans, but am still not sure of them.
4. made definite plans, but don't know how to carry them out.
5. made definite plans, and know what to do to carry them out.

Students differ greatly in the amount of time and thought they give to making choices.

How to you rate yourself? Choose the one best answer.

14. Choosing school courses. Compared to my classmates, I

1. give less time and thought than most.
2. rate a little below average.
3. rate about average.
4. rate a little above average.
5. give more time and thought than most.

15. Choosing school activities. I

1. give less time and thought than most.
2. rate a little below average.
3. rate about average.
4. rate a little above average.
5. give more time and thought than most.

16. Choosing out-of-school activities. I

1. give less time and thought than most.
2. rate a little below average.
3. rate about average.
4. rate a little above average.
5. give more time and thought than most.

17. Choosing a regular adult occupation. I

1. give less time and thought than most.
2. rate a little below average.
3. rate about average.
4. rate a little above average.
5. give more time and thought than most.

CONTINUE. Choose the one best answer to each question to rate yourself on how much time and thought you give to making choices.

18. Choosing a career in general. I

1. give less time and thought than most.
2. rate a little below average.
3. rate about average.
4. rate a little above average.
5. give more time and thought than most.

19. My plans for "after high school" are

1. not at all clear or sure.
2. not very clear.
3. not clear for some things, clear for others.
4. fairly clear.
5. very clear, about decided.

Choose one of the five statements to show how much you know about the job or group of jobs in which you said you would like to work when you finish your education.

20. What people really do on the job. I know

1. hardly anything about it.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about it.

21. The abilities needed for the occupation. I know

1. hardly anything about it.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about it.

22. The working conditions around such jobs. I know

1. hardly anything about it.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about it.

23. The education or training needed to get such a job. I know

1. hardly anything about it.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about it.

CONTINUE. Choose the one best answer to each question.

24. The classes offered in school that are best for that kind of job. I know

1. hardly anything about them.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about them.

25. The need for people on that kind of job in the future. I know

1. hardly anything about it.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about it.

26. Different ways of getting into that occupation. I know

1. hardly anything about them.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about them.

27. The starting pay for that occupation. I know

1. hardly anything about it.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about it.

28. The chances for advancing in that kind of job or occupation. I know

1. hardly anything about them.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about them.

29. What sort of working day and work week I might have in the occupation. I know

1. hardly anything about them.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about them.

30. What sort of friends I might have on and away from the job. I know

1. hardly anything about them.
2. a little.
3. an average amount.
4. a good deal.
5. a great deal about them.

End of Part I. Go on to Part II.

PART II. WHERE TO GET INFORMATION. Choose the one best answer to each question to show where you would go for information or help in making your job or college plans.

1. Father, mother, uncles, aunts, etc.

1. definitely not
2. probably not
3. not sure
4. probably
5. definitely

2. Brothers, sisters, or cousins.

1. definitely not
2. probably not
3. not sure
4. probably
5. definitely

3. Friends.

1. definitely not
2. probably not
3. not sure
4. probably
5. definitely

4. Coaches of school or other teams.

1. definitely not
2. probably not
3. not sure
4. probably
5. definitely

5. Teachers.

1. definitely not
2. probably not
3. not sure
4. probably
5. definitely

6. School counselors.

1. definitely not
2. probably not
3. not sure
4. probably
5. definitely

CONTINUE. Choose the one best answer to each question.

7. Private counselors, outside of school. I would

1. definitely not go to them.
2. probably not.
3. not sure.
4. probably.
5. definitely go to them.

8. Other adults who know things and can help people.

1. definitely not
2. probably not
3. not sure
4. probably
5. definitely

9. Books with the information I need. I would

1. definitely not use them.
2. probably not.
3. not sure.
4. probably.
5. definitely use them.

10. Audio or visual aids like tape recordings, movies, or computers. I would

1. definitely not use them.
2. probably not.
3. not sure.
4. probably.
5. definitely use them.

11. College catalogs. I would

1. definitely not use them.
2. probably not.
3. not sure.
4. probably.
5. definitely use them.

12. People in the occupation or at the institute or college I am considering. I would

1. definitely not talk with them.
2. probably not.
3. not sure.
4. probably.
5. definitely talk with them.

13. TV shows, movies, or magazines. I would

1. definitely not expect help from them.
2. probably not.
3. not sure.
4. probably.
5. definitely expect help from them.

CONTINUE. Choose the one best answer to each question.

This time show which people or sources listed below have already given you helpful information in making your job or college plans.

14. Father, mother, uncles, aunts, etc. have given me or directed me to

1. no useful information.
2. very little useful information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

15. Brothers, sisters, or other relatives have given me or directed me to

1. no useful information.
2. very little useful information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

16. Friends have given me or directed me to

1. no useful information.
2. very little useful information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

17. Coaches of school or other teams have given me or directed me to

1. no useful information.
2. very little information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

18. Teachers have given me or directed me to

1. no useful information.
2. very little useful information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

19. School counselors have given me or directed me to

1. no useful information.
2. very little useful information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

Go on to the next page.

CONTINUE. Choose the one best answer to each question to show which people or sources listed below have already given you helpful information in making your job or college plans.

20. Private counselors, outside of school have given me or directed me to

1. no useful information.
2. very little useful information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

21. Books with the information I needed have given me

1. no useful information.
2. very little useful information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

22. Audio or visual aids like tape recordings, movies, or computers have given me

1. no useful information.
2. very little useful information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

23. College catalogs have given me

1. no useful information.
2. very little useful information
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

24. People in the occupation or at the institute or college I am considering have given me or directed me to

1. no useful information.
2. very little useful information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

25. TV shows, movies, or magazines have given me

1. no useful information.
2. very little useful information.
3. some useful information.
4. a good deal of useful information.
5. a great deal of useful information.

Go on to the next page.

CONTINUE. Choose the one best answer to each question.

26. Which one of the following is the best source of information about job duties and opportunities?

1. The Encyclopedia Britannica
2. World Almanac
3. Scholastic Magazine
4. The Occupational Index
5. The Occupational Outlook Handbook

27. Which one of the following would be most useful for detailed information about getting into college?

1. The World Book or Collier's Encyclopedia
2. Webster's Collegiate or the Oxford Dictionary
3. Barron's, the College Blue Book, or Lovejoy's College Guide
4. Reader's College Digest
5. The Education Index

28. The most detailed and complete information about recent employment trends is published in

1. Business Week.
2. Advertising Age.
3. The Wall Street Journal.
4. The Monthly Labor Review.
5. The National Review.

29. Current occupational trend information is published in

1. Change.
2. The Occupational Outlook Quarterly.
3. The Nation.
4. The Congressional Record.
5. The Futurist.

30. To find out about local business activities, one would go to the

1. Better Business Bureau.
2. City or Town Hall.
3. Public Library.
4. Chamber of Commerce.
5. A.F. of L. -C.I.O.

End of Part II. Go on to Part II

PART III. WHAT TO CONSIDER AND DO. What should each of the following students do?
Choose the one best answer for each case.

1. E.R. took some tests which show some promise for clerical work. The student says, "I just can't see myself sitting behind a desk for the rest of my life. I'm the kind of person who likes variety. I think a traveling job would suit me fine". E.R. should:
 1. disregard the tests and do what he or she wants to do.
 2. do what the tests say since they know best.
 3. look for a job which requires clerical ability but does not pin one to a desk.
 4. ask to be tested with another test since the results of the first one are probably wrong.
2. J.D. might like to become a computer programmer, but knows little about computer programming, and is going to the library to find out more about it. The most important thing for J.D. to know now is:
 1. what the work is, what one does on the job.
 2. what the pay is.
 3. what the hours of work are.
 4. where one can get the right training.
3. A.M. is very good with skilled handwork and there isn't anybody in the class who has more mechanical aptitude or is better at art. Best grades are in math. A.M. likes all of these things.

What should A.M. do?

1. Look for an occupation which will use as many of these interests and abilities as possible.
 2. Pick an occupation which uses math since there is a better future in that than in art or in working with one's hands.
 3. Decide now on one of these activities because of ability or interest, and then pick an occupation which uses that kind of asset.
 4. Put off deciding about the future and wait until interest in some of these activities declines.
4. B.R. gets very good science grades but doesn't care too much about this subject. The subject liked best is art even though grades in it are only average. This student is most likely to do well in a future occupation if he or she:
 1. forgets about interest in art since achievement is so much better in science.
 2. doesn't worry about the achievement in art, because if you like something you can become good at it.
 3. looks for an occupation which uses both art and science, but more science than art.
 4. looks for an occupation which involves both science and art, but more art than science.

CONTINUE. Choose the one best answer in each case.

5. L.F. professes not to really care what kind of work is available on leaving school as long as it is working with people. If this is all this student cares about he or she is likely to make a bad choice because:
 1. this kind of work usually requires a college degree.
 2. employers usually hire people with definite interests and objectives.
 3. people look down on those who work with people because such work usually doesn't pay as well as technical work.
 4. occupations in which one works with people can be very different from each other in the abilities and interests which are needed.
6. R.A. has good grades in all high school courses, wants to go to college, has parents' approval for going to college, but has no occupational plans. What is the best next step for R.A.?
 1. Delay college until occupational plans emerge.
 2. Choose a college major that is very difficult.
 3. Choose a college where exploring several majors is encouraged for the first two years.
 4. Find out about graduate and professional school requirements.
7. A.K. can't decide whether to become an air-conditioning and refrigeration technician or an engineer. In making the choice, to which of the following should A.K. pay the most attention?
 1. How much money A.K. wants to earn.
 2. How much education and training A.K. is likely to be able to get.
 3. What A.K.'s parents would prefer.
 4. Which occupation people respect most.
8. P.T. is a high school junior with no education or vocational plans beyond high school. What would you recommend that P.T. do first?
 1. A thorough search of colleges to attend.
 2. An analysis of relevant personal characteristics such as abilities, interests, and values.
 3. An intensive study of information about occupations.
 4. A matching of P.T.'s abilities with job requirements.
9. E.R. is a ninth-grader with excellent school grades and very high scores on all ability tests, but no educational or vocational plans. What is the best advice one could give E.R.?
 1. Arrive at a definite goal as soon as possible.
 2. Not to be concerned about a goal or a plan because success is almost certain.
 3. Concentrate on selecting the right college.
 4. Find out when important choices will have to be made and get the needed information.

CONTINUE. Choose the one best answer in each case.

10. An uncle has just told T.H. that his company is always looking for tool and die makers, pays them well and keeps them on the payroll even in bad times. T.H. is interested and wants to learn more about the occupation. What is the most important thing for T.H. to learn?
 1. Where tool and die makers work.
 2. How much training is required.
 3. What is the work tool and die makers do.
 4. What tool and die makers actually are paid.
11. L.F. has good school grades and looks forward to studying engineering in college. What is the best advice to help L.F. plan a tenth-grade course schedule?
 1. Be sure to schedule college preparatory math and science.
 2. Get all of the shop courses it is possible to take.
 3. Take a light load because in college it will be hard work.
 4. Allow time for a part-time job to learn what engineers do.
12. J.M., who has always dreamed of being either a lawyer or a business executive, cannot plan for college because of the cost. J.M.'s grades and test scores show good promise for college. What should be recommended for J.M. after high school?
 1. Find a job in a law office and go to law school at night.
 2. Get a job in a business concern that offers on-the-job training and other educational opportunities.
 3. Forget about law and business and work in a field that requires no education.
 4. Find a rewarding hobby.
13. M.J. is considering becoming either a research chemist or a lawyer. In choosing between the two, to which of the following should be given the most weight? Whether M.J.'s
 1. ability in science and grades in science courses are good enough.
 2. can afford to go to college.
 3. can get admitted to a college.
 4. friends think the choice is a good one.
14. After careful thought E.K. has decided on business training for a year or two after high school. However, deciding between majors in accounting and sales remains a problem for E.K. In exploring this problem, to what should be given the most weight?
 1. The difference in training time required by the two majors.
 2. The chances of being admitted for training in the major.
 3. Which major requires the most work.
 4. Which major best fits E.K.'s abilities and interests.

CONTINUE. Choose the one best answer in each case.

15. J.F. is the best all around artist in the class, winning art competitions consistently. But academic subject matter comes hard to J.F., who will probably graduate in the bottom fifth of the senior class. Which is the most realistic educational plan for J.F.?
1. Seek admission to a university where one can combine art and regular college subjects to earn a Bachelor of Fine Arts.
 2. Forget about any education beyond high school.
 3. Forget about art and concentrate on college preparatory subjects.
 4. Seek admission to an art school where poor academic grades will not be a handicap.
16. L.D. wants to be a newspaper reporter. Which of the following paths might lead to becoming a qualified newspaper reporter?
1. Working full-time on a newspaper and continuing education on a part-time basis.
 2. Earning a bachelors degree in Journalism.
 3. Taking a liberal arts degree first, followed by a graduate degree in Journalism.
 4. Any of the above.
17. B.D.'s interest in and skill at helping others has become the most important part of B.D.'s self-picture. Which occupation should B.D. probably not be considering?
1. Nurse's aide
 2. Recreation worker
 3. Sales person
 4. Teacher's aide
18. R.R. gets B's in math and science but has failed ninth-grade English twice, and gets D's in social studies courses. Which occupation makes the most sense for R.R.?
1. Engineering technician
 2. Veterinarian
 3. Civil engineer
 4. Science and math teacher
19. J.M. has high ability, excellent grades and the money to go to college. J.M.'s only clear future goal is to make a great deal of money. What should J.M. do?
1. Pursue a career in medicine because that's where the money is.
 2. Arrive at an appropriate vocational goal and the money will take care of itself.
 3. Change goals because wanting a lot of money is not a good thing.
 4. Find out what wanting to make a lot of money really means.

CONTINUE. Choose the one best answer in each case.

20. A.S. has good tested ability but has poor high school grades. The counselor advises that A.S. will not be admitted to any college because of the high school record. A.S. thinks the problems that caused the low grades are now solved and wants to get more education. What is A.S.'s best course of action?

1. Forget about college and seek a satisfying job.
2. Repeat courses in high school in order to improve the grades.
3. Find out about junior colleges and community colleges whose admission standards are less demanding.
4. Get private tutoring in the weak subjects.

What is most important, what is best, in each of the following situations? Continue to choose the one best answer.

21. In deciding which colleges to apply to, what should be the most important consideration?

1. Does one have friends at that college?
2. Does the college offer preparation for the occupational goal one has in mind?
3. Are the physical surroundings of the college pleasant and agreeable?
4. How far from home is the college?

22. Your French teacher thinks you have exceptional talent in French and encourages you to think about studying French in College and in graduate school. You like the idea, but know little about what studying French might lead to. What is the best first step to take?

1. Find out which colleges offer French majors.
2. Talk to a counselor about what kinds of information you need and how to get it.
3. Find out about graduate school requirements for studying French.
4. Investigate the demand for French teachers.

23. There are several steps in making good decisions and choices. Which is the first step?

1. Knowing there are choices you can or should make
2. Deciding what you want to do and finding out the best way of doing it
3. Doing the things that will help you achieve your goal
4. Not being afraid to change your mind if your decision doesn't work out

24. The last step in good decision-making is to

1. choose a goal and stick to it.
2. figure out what your chances of success are.
3. do the kinds of things which will get you where you want to be.
4. do the things you need to do to achieve your goal, but change to something else if things don't work out.

CONTINUE. Choose the one best answer to each of the following questions.

25. If the goal you have set for yourself is realistic and reasonable, the most important thing is
1. to stick to it no matter what happens.
 2. not to be influenced by what other people think of your choice.
 3. to have good plans for achieving it.
 4. to forget about all other possibilities.
26. If you have an accurate picture of the kind of person you are, you are more likely to
1. make good decisions and choices.
 2. be able to sell yourself to an employer or college admissions officer.
 3. have confidence in yourself.
 4. end up in a high level job.
27. The reason why you should try yourself out in different courses and activities in high school is that
1. it looks good on your transcript and in your letters of reference.
 2. it helps you to discover your interests and abilities and your strengths and weaknesses.
 3. your friends will think more highly of you.
 4. it is more satisfying to be active than idle.
28. The reason why it is a good idea to talk things over with your parents when you are choosing an occupation or college is that
1. they know you better than anybody else and can give you good advice.
 2. their encouragement and backing are important to have.
 3. they may have contacts you don't know about.
 4. they may have other plans for you.
29. In the 9th and 10th grades, plans about jobs and occupations should
1. be clear.
 2. not rule out any possibilities.
 3. keep open the best possibilities.
 4. not be made at all.
30. Decisions about school classes can have an effect on
1. the kind of diploma one gets.
 2. the kind of training or education one can get after high school.
 3. later occupational choices.
 4. all of these.

End of Part III.

ANSWER SHEET
CAREER DEVELOPMENT INVENTORY: PARTS I, II, III

Junior and Senior High School Form III, Modular

Name or Code No. _____ Date _____
PLEASE PRINT Last Name, First Name Middle Initial
School _____ Town _____
Grade: 7th _____ 8th _____ 9th _____ 10th _____ 11th _____ 12th _____ Junior College _____
Sex: Male _____ Female _____ OCCUPATIONAL GROUP PREFERENCE _____ (Fill in the Group Letter
from the Occupational Group Preference Form)

DIRECTIONS: Make no marks except in the spaces provided. Use a pencil or pen and make a heavy line across the number on the answer sheet that corresponds to the number you chose on the Inventory, like this: 1. 1 - ~~2~~ - 3 - 4 - 5. If you want to change your answer, check out the one you incorrectly chose and then mark the answer you prefer.

PART I		PART II		PART III	
ANSWER	Q	ANSWER	Q	ANSWER	Q
1-2-3-4-5	16.	1-2-3-4-5	1.	1-2-3-4-5	16.
1-2-3-4-5	17.	1-2-3-4-5	2.	1-2-3-4-5	17.
1-2-3-4-5	18.	1-2-3-4-5	3.	1-2-3-4-5	18.
1-2-3-4-5	19.	1-2-3-4-5	4.	1-2-3-4-5	19.
1-2-3-4-5	20.	1-2-3-4-5	5.	1-2-3-4-5	20.
1-2-3-4-5	21.	1-2-3-4-5	6.	1-2-3-4-5	21.
1-2-3-4-5	22.	1-2-3-4-5	7.	1-2-3-4-5	22.
1-2-3-4-5	23.	1-2-3-4-5	8.	1-2-3-4-5	23.
1-2-3-4-5	24.	1-2-3-4-5	9.	1-2-3-4-5	24.
1-2-3-4-5	25.	1-2-3-4-5	10.	1-2-3-4-5	25.
1-2-3-4-5	26.	1-2-3-4-5	11.	1-2-3-4-5	26.
1-2-3-4-5	27.	1-2-3-4-5	12.	1-2-3-4-5	27.
1-2-3-4-5	28.	1-2-3-4-5	13.	1-2-3-4-5	28.
1-2-3-4-5	29.	1-2-3-4-5	14.	1-2-3-4-5	29.
1-2-3-4-5	30.	1-2-3-4-5	15.	1-2-3-4-5	30.

OCCUPATIONAL GROUP PREFERENCE FORM

FIRST STEP

Below are 20 groups of jobs and occupations. First, check each job or occupation that you would like when you go to work, paying no attention to the grouping. If you are particularly interested in an occupation which is not listed, find the group where it seems to belong, write it on the blank line for that group, and check the space in front of it.

GROUP A MATH & PHYSICAL SCIENCE RESEARCH Chemist Physicist Geologist Oceanographer Mathematician _____ _____ _____	GROUP B ENGINEERING APPLIED SCIENCE Engineer (Chemical, Elec- trical, Mechanical, Civil) Industrial Engineer Systems Analyst Applied Statistician Meteorologist _____ _____ _____	GROUP C MEDICAL & LIFE SCIENCES Medical Doctor Dentist Physiologist Soil Scientist Veterinarian _____ _____ _____	GROUP D MEDICALLY RELATED Occupational Therapist Dental Hygienist Medical Technologist Nurse (Registered) Pharmacist _____ _____ _____
GROUP E BUSINESS-ANALYTIC Appraiser Bursar or Controller Cost Accountant Credit Analyst Computer Programmer _____ _____ _____	GROUP F BUSINESS-ADMINISTRATION Bank Manager Business Manager Police Chief Transportation Superintendent Personnel Manager _____ _____ _____	GROUP G BUSINESS-SALES & PROMOTION Account Executive Broker Buyer Purchasing Agent Sales Manager _____ _____ _____	GROUP H VISUAL & PERFORMING ARTS Art Director Commercial Artist Musician Interior Decorator Stage Director _____ _____ _____
GROUP I LITERARY & LEGAL Book critic Librarian Editor Lawyer Reporter _____ _____ _____	GROUP J SOCIAL SCIENCES Economist Market Research Analyst Political Scientist Social Psychologist Sociologist _____ _____ _____	GROUP K EDUCATION & HUMAN WELFARE School Teacher College Professor Guidance Counselor Social Worker Clinical Psychologist _____ _____ _____	GROUP L TECHNICAL Food and Beverage Analyst Photoengraver Air Traffic Controller Surveyor Engineering Technician _____ _____ _____
GROUP M CRAFTS & TRADES Auto Mechanic Dressmaker Electrician Machinist Plumber _____ _____ _____	GROUP N AGRICULTURE & FORESTRY Dairy Farmer Farm Supervisor Fish and Game Warden Landscape Gardener Horticulturist _____ _____ _____	GROUP O MECHANICS & OPERATORS Bulldozer Operator Bus Driver Drill Press Operator Handbag Assembler Sewing Machine Operator _____ _____ _____	GROUP P ATTENDANTS, HELPERS, LOADERS Cannery Worker Waiter/Waitress Stevedore Parking Lot Attendant Ticket Taker _____ _____ _____
GROUP Q CLERICAL Cashier File Clerk Bank Teller Stenographer Typist _____ _____ _____	GROUP R PERSONAL & PROTECTIVE SERVICES Cook Host or Hostess (restaur.) Hair Stylist Hospital Attendant Police Officer _____ _____ _____	GROUP S SALES & DISPLAY Car Rental Clerk Hi-Fi Salesperson Life Insurance Salesperson Office Machine Salesperson Sales Clerk _____ _____ _____	GROUP T SPORTS & ENTERTAINMENT Actor or Actress Announcer Athlete Dancer Musical Entertainer _____ _____ _____

SECOND STEP

Now look again at the jobs and occupations listed above. Decide which one of the GROUPS you like best. On the line below encircle the letter of the GROUP you like best.

GROUP LIKED BEST: A B C D E F G H I J K L M N O P Q R S T

Now please turn to the other side.

CAREER DEVELOPMENT INVENTORY
Junior and Senior High School Form III, Modular

David J. Forrest Donald E. Super
Jean Pierre Jordaan and
Richard H. Lindeman Roger A. Myers
Albert S. Thompson

Teachers College, Columbia University
New York, New York
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PARTS IV, V, VI

Introduction

The questions you are about to read ask you about school, work, your future career, and some of the plans you may have made. Answers to questions like these can help you see what kind of help may be useful to you in planning and preparing for a job after graduation, for vocational and technical school training, or for going to college and then pursuing an occupational career.

How to Answer

All your answers to the Career Development Inventory go on the special answer sheet. Do not write your answers in the Booklet. Remove the Answer Sheet (last page) from the booklet.

ANSWER ALL QUESTIONS. If you are not sure about an answer, guess. There is no set time limit, but work as rapidly as you can; the first answer that comes to you is often the best one.

The First Step

Some of the questions concern the kind of work you would like to do when you complete your education. At this stage, you probably have not definitely decided on a specific occupation but you probably can pick out a field of work you are considering.

To help you do this, we have included an Occupational Group Preference Form, found on the back of the Answer Sheet. Follow the instructions at the top of that form and select one of the Occupational Groups (A to T).

Note: If you have already done this for Parts I, II, III, merely put the letter of your preferred Occupational Group on the Answer Sheet.

The Next Step

Fill in all the information at the top of the Answer Sheet, including the letter of the Occupational Group you have selected.

TURN THE PAGE TO THE QUESTIONS AND BEGIN.

PART IV. CAREER INFORMATION. Choose the one best answer to each of the following questions.

1. The career decisions we make are important because
 1. they can affect our lives and even our personalities.
 2. people judge us by the kinds of decisions we make.
 3. once it has been made a decision is hard to change.
 4. if you make a bad decision you pay for it the rest of your life.
2. The things we learn in school, at home, and out of school have a lot to do with what we will do one day for a living and with how good we will be at it. Which of the following is most important?
 1. What you learn at school and at home
 2. What you learn from part-time and summer jobs
 3. What you learn from friends
 4. What you learn from TV
3. An important part of growing up is finding out what you are like and what the world of work is like. Young people should therefore be encouraged to
 1. explore widely.
 2. seek counseling.
 3. read a lot.
 4. go on trips.
4. Tenth graders should be expected to know
 1. exactly what occupation they want to go into.
 2. the kind of work but not necessarily the specific occupation they want.
 3. where to get the job they want.
 4. the different occupations a person with their interests and abilities could go into.
5. When a teacher or counselor encourages students to explore themselves and the world about them, what he wants them to do is
 1. to be active in school affairs.
 2. to go on field trips.
 3. to try themselves out in a variety of situations and activities.
 4. to take some aptitude tests.
6. Exploration is something which people should be encouraged to engage in
 1. throughout their lives.
 2. when they become dissatisfied with the way things are.
 3. when they lose their jobs.
 4. when things start to go wrong.

2.

CONTINUE. Choose the one best answer to each question.

7. It is hard to decide exactly what kind of work is best for you until you have
1. taken some tests.
 2. had certain kinds of experiences.
 3. gotten to know the right people.
 4. changed jobs many times.
8. The best way to find out about yourself and the world around you is to
1. read a lot.
 2. try yourself out in many different situations and activities.
 3. take some aptitude tests.
 4. ask other people what they think.
9. There are grown-ups who will never have steady jobs and who will go from one job or employer to another. Such persons should
1. open a savings account.
 2. go to an employment agency.
 3. accept the fact that this is the way their lives are going to be and plan accordingly.
 4. go on welfare.
10. Many high school students have goals which their tests suggest may not be wise. This is
1. all right provided they check them out and learn from it.
 2. bad because they are only asking for trouble.
 3. good because it is better to aim too high than to aim too low.
 4. nothing to worry about; it is only a stage they are going through.
11. As you go from childhood to adolescence, from adolescence to adulthood, and from adulthood to middle age and old age, the most important thing is that
1. people expect more of you.
 2. you have new decisions and choices to make.
 3. the competition gets tougher.
 4. your life gets easier.
12. Which of the following will help high school students most in thinking about a career?
1. Making the right contacts
 2. Setting an occupational goal early and sticking to it
 3. Finding out where the best opportunities for employment are
 4. Finding out what activities and courses they like most and are best at

CONTINUE. Choose the one best answer to each question.

3. The reason why many young people change jobs frequently between the ages of 18 and 25 is that
 1. they don't know when they are well off.
 2. they received wrong advice from their parents and teachers.
 3. when business is bad young people are the first to be fired.
 4. they don't know enough about themselves or work to make good choices.
4. Once you have a job getting ahead in your field is mostly a matter of
 1. being willing to work long hours.
 2. whom you know rather than what you know.
 3. having clear goals and knowing what to do to achieve them.
 4. doing what your employer tells you to do.
5. It is usually not a good idea for a high school student to set his mind on only one occupation and to rule out all other possibilities. The reason it is not a good idea is that
 1. you will be discouraged and disappointed if you don't get what you want.
 2. there may not be any jobs in that field by the time you graduate.
 3. most young people do not know enough about themselves or the world of work to be so sure of their choices.
 4. when the time comes you may not have the money to get the training you need.
6. By age 25 most young workers have stopped changing jobs and are ready to "settle down". This is because
 1. they have learned that you lose more than you gain by changing jobs.
 2. they realize that changing jobs only gives you a bad reputation.
 3. they now have a better picture of what they and the world of work are like.
 4. most employers won't hire people who have moved around a lot.
7. Suppose you know what kind of work you would like to do and also know about the many different occupations which can be found in that field. What information would you need to be able to pick out those occupations which are at the right level for you? (By field is meant the kind of work you would like to do, for example, scientific work, social service work, work involving machines and tools; by level is meant the amount of education and training you would need to get, and the amount of responsibility you would have to carry on the job.)
 1. Information about your abilities
 2. Information about educational and training requirements
 3. Information about what it would cost to get the needed training and education
 4. All of the above

CONTINUE. Choose the one best answer to each question.

18. The most important thing about the courses you take at college or the jobs you take after you leave school is
1. whether your parents approve of your choice.
 2. what they tell you about your interests and abilities.
 3. what your instructors or employers think of you.
 4. whether they are easy or difficult.
19. What is the best advice one can give high school and college students with regard to their future plans?
1. Evaluate and revise those plans in the light of experience
 2. Stick to them no matter what
 3. If at first you don't succeed, try, try again.
 4. Get to know key people; contacts are more important than grades or employers' ratings.
20. Being happy in a job is mostly a matter of
1. being paid well.
 2. having interesting things to do when your day's work is done.
 3. knowing what you want from a job and getting it.
 4. receiving promotions and pay increases.
21. Students who want to go to college or to seek a particular kind of job when they leave high school can improve their chances most by
1. being active in school affairs.
 2. choosing appropriate high school courses.
 3. getting along with their teachers and counselors.
 4. choosing courses in which they know they will get good grades.
22. A high school student who is thinking of going to a four-year college does well to decide which colleges to apply to
1. when finishing 10th grade.
 2. by the end of the 11th grade.
 3. by mid-year in 12th grade.
 4. after graduation and all grades are in.
23. When leaving high school or college a student who plans to get a job should have
1. a definite job lined up before leaving.
 2. a specific place in mind for applying for a job.
 3. specific places and specific jobs in mind.
 4. specific places and types of jobs in mind.

Go on to the next page.

CONTINUE. Choose the one best answer to each question.

24. In choosing an occupation, how quickly one learns things should be given
1. no weight, as one can learn what one really wants to in time.
 2. some weight, because one may not have time to learn the things that come hard.
 3. a great deal of weight, because it is likely to indicate how easy or difficult things will be later.
 4. more weight than anything else.
25. Being interested in the kind of work one does generally
1. leads to doing well in the work.
 2. leads to being satisfied with one's work.
 3. doesn't matter since one can learn to like almost anything.
 4. is unimportant, provided the pay, hours, etc. are good.
26. A student who, on leaving high school, takes a semi-skilled factory job at a good wage instead of a learner's job or apprenticeship
1. gives up a better future for a better present.
 2. should work his way up to a more skilled job easily enough.
 3. is probably following the school counselor's advice.
 4. is probably giving in to pressure from parents.
27. Which of the following changes of college major is the easiest to make? From
1. Business Administration to Biology.
 2. Physics to Business Administration.
 3. History to Physics.
 4. Engineering to Business Administration.
28. Changing majors or specialties, whether in school, in college, or in the world of work, is
1. difficult, involves loss of time, money, and the respect of friends, with little benefit in the end.
 2. involves extra time and money, but easy enough and provides variety that may be worth the trouble.
 3. difficult, involves time and money, but can result in special combinations of knowledge and skill that open up new opportunities.
 4. easy enough, but not likely to be of much benefit.
29. Most people begin to settle down in some type of work at about age
1. 19.
 2. 22.
 3. 25.
 4. 28.
30. People who continue to work after they retire usually do so because they
1. have to in order to get Social Security.
 2. like the work and the activity.
 3. are needed by their employers.
 4. don't know what else to do.

PART V. WORLD OF WORK INFORMATION. Choose the one best answer to each question.

1. Which one of the following occupations belongs to an occupational family or field of work which is different from that of the other four?

1. Bricklayer
2. Carpenter
3. House painter
4. Lineman
5. Plumber

2. One of the things that great artists, musicians, and professional athletes have in common is the desire to

1. make money.
2. have large audiences.
3. be the best there is at what they do.
4. teach others to do what they do.
5. have steady jobs.

3. Which one of the following is most likely to supervise other workers?

1. Machinist
2. Mechanic
3. Millwright
4. Tool and die maker
5. Lathe operator

4. Which one of the following is likely to have the highest weekly salary?

1. General clerk
2. Receptionist
3. Secretary
4. Switchboard operator
5. Typist

5. The energy crisis has revived:

1. Bootlegging
2. Candlemaking
3. Charcoal burning
4. Coal mining
5. Scavenging

6. The occupational fields expected to grow most rapidly during the next ten years are:

1. Professional and service
2. Sales and crafts
3. Crafts and clerical
4. Labor and sales
5. Managerial and labor

Go on to the next page.

CONTINUE. Choose the one best answer to each question.

7. Bricklayers are generally trained

1. in community colleges.
2. in high school.
3. in apprenticeships or on the job.
4. in technical institutes.
5. in vocational high schools.

8. Dental technicians usually learn their jobs in

1. high schools.
2. apprenticeships or on-the-job training.
3. community colleges or technical schools.
4. four-year colleges or universities.
5. graduate or professional schools.

9. Family doctors (physicians) usually learn their jobs in

1. high schools.
2. apprenticeships or on-the-job training.
3. community colleges or technical schools.
4. four-year colleges or universities.
5. graduate or professional schools.

10. Mail carriers usually learn their jobs in

1. high schools.
2. apprenticeships or on-the-job training.
3. community colleges or technical schools.
4. four-year colleges or universities.
5. graduate or professional schools.

1. Computer operators usually learn their jobs in

1. high schools.
2. apprenticeships or on-the-job training.
3. community colleges or business schools.
4. four-year colleges or universities.
5. graduate or professional schools.

2. Bank clerks usually learn their jobs in

1. high schools.
2. apprenticeships or on-the-job training.
3. community colleges or business schools.
4. four-year colleges or universities.
5. graduate or professional schools.

8.

CONTINUE. Choose the one best answer to each question.

13. Dressmakers are most likely to use

1. splints.
2. slide rules.
3. plumb lines.
4. patterns.
5. pliers.

14. Medical laboratory technicians are most likely to use

1. levels.
2. clinical thermometers.
3. log tables.
4. tongue depressors.
5. microscopes.

15. An artist is most likely to use

1. calcium.
2. charcoal.
3. heavy water.
4. pitchblend.
5. sodium.

16. A secretary using the most up-to-date equipment is most likely to use

1. litmus paper.
2. tracing paper.
3. punch cards.
4. scotch tape.
5. magnetic cards.

17. A stock broker is most likely to use

1. a calculator.
2. calipers.
3. forceps.
4. a micrometer.
5. ticker tape.

18. Bookkeepers are most likely to use

1. lathes.
2. calculators.
3. ledgers.
4. slide rules.
5. copiers.

CONTINUE. Choose the one best answer to each question.

19. Bricklayers are most likely to use

1. punch presses.
2. boring machines.
3. planes.
4. sledge hammers.
5. trowels.

20. Which of the following is most likely to work late at night?

1. Court reporter
2. Drama critic
3. Art editor
4. Political reporter
5. Society columnist

21. Which of the following is most likely to be able to forget about work after leaving the workplace?

1. Administrative assistant
2. Secretary
3. Bookkeeper
4. Typist
5. Credit clerk

22. Equal employment opportunity legislation is now making more opportunities for

1. women.
2. high school graduates.
3. high school dropouts.
4. old people.
5. young people.

23. Recent trends in employment make it clear that from now on

1. almost all married women will work after marriage.
2. more than half of the married women will work after marriage.
3. almost half of the married women will work.
4. few married women will work.
5. very few married women will work after marriage.

24. Between 1910 and 1970, the industry employing the greatest number of workers changed from

1. agriculture to wholesale and retail trade.
2. manufacturing to agriculture.
3. wholesale and retail trade to manufacturing.
4. agriculture to manufacturing.
5. manufacturing to communications.

Go on to the next page.

CONTINUE. Choose the one best answer to each question.

25. Waiters and Waitresses are paid

1. monthly salaries.
2. weekly salaries.
3. hourly wages.
4. wages and tips.
5. tips only.

26. Which of the following is most likely to be paid on a commission basis?

1. Commercial photographer
2. Dime-store clerk
3. Department store furniture salesperson
4. Lawyer in private practice
5. Physician in private practice

27. Making good on one's first job depends mostly on

1. whom one knows.
2. putting up a good front.
3. dependability.
4. playing the game.
5. doing what the boss says.

28. In starting a new job, it is most important to

1. make sure the other workers like you.
2. show the other workers that they can't put anything over on you.
3. show that you are your own boss.
4. be aware of how others feel about things.
5. hide your own feelings from others.

29. In dealing with customers, clients, or other outsiders with whom your work brings you in contact, it is most important to

1. show them that you know more about your work than they do.
2. understand what they want and see if you can help them get it.
3. make sure that you do only as you are told.
4. do whatever brings in the most money.
5. make your employer look good, no matter what.

30. Which of the following is most important in a job application interview?

1. Telling the interviewer you will do any work so long as the job is a good one
2. Knowing what salary or pay to ask for
3. Finding out whether you and the job are right for each other
4. Being polite and well-dressed
5. Being introduced by a mutual friend

End of Part V. Go on to Part VI.
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PART VI. KNOWLEDGE OF PREFERRED OCCUPATION. The following questions should be answered in terms of the Occupational Group you selected when filling in the Occupational Group Preference Form.

First, be sure you have put the letter of the Preferred Occupational Group on the Answer Sheet.

Now you are ready to answer the questions that follow. They list ways in which occupations differ from each other. In describing your Occupational Group, think of what is true for most of the Occupations in that Group. Mark the one best answer to each question.

Most occupations involve some combination of working with words, numbers, people, and things. In your preferred Occupational Group the

1. most important is: 1. words. 2. numbers. 3. people. 4. things.
2. next most important is: 1. words. 2. numbers. 3. people. 4. things.
3. least important is: 1. words. 2. numbers. 3. people. 4. things.
4. The Occupational Group that you selected requires the use of

1. no special tools or equipment.
2. hand-tools, without real precision.
3. hand-tools, with real precision.
4. equipment, with simple handling or adjustments.
5. complex equipment requiring technical knowledge and skill.

Some people learn to do a new job more easily and more quickly than others. Think of how people differ in this kind of ability and rate your Occupational Group to show how much of the following abilities are required.

5. Verbal reasoning (understanding and working with words). On this ability, this Occupational Group is typically made up of
 1. the top 10% of people in general.
 2. above average people.
 3. average, middle third of people in general.
 4. below average people.
 5. the bottom 10% of people in verbal reasoning.
6. Numerical ability (working with numbers and using them in solving problems). On this ability, this Occupational Group is typically made up of
 1. the top 10% of people in general.
 2. above average people.
 3. average, middle third of people in general.
 4. below average people.
 5. the bottom 10% of people in numerical ability.

Go on to the next page.

CONTINUE. Choose the one best answer to each question.

7. Abstract reasoning (ability to see relationships among objects, patterns and designs). On this ability, this Occupational Group is typically made up of
 1. the top 10% of people in general.
 2. above average people.
 3. average, middle third of people in general.
 4. below average people.
 5. the bottom 10% of people in abstract reasoning.
8. Clerical speed and accuracy (speed and accuracy in comparing combinations of letters and numbers.) On this ability, this Occupational Group is typically made up of
 1. the top 10% of people in general.
 2. above average people.
 3. average, middle third of people in general.
 4. below average people.
 5. the bottom 10% of people in clerical speed and accuracy.
9. Mechanical reasoning (ability to understand mechanical principles and devices and to apply the laws of everyday physics). On this ability, this Occupational Group is typically made up of
 1. the top 10% of people in general.
 2. above average people.
 3. average, middle third of people in general.
 4. below average people.
 5. the bottom 10% of people in mechanical reasoning.
10. Space relations (ability to see things in relation to each other, to think in three dimensions, and to picture things in one's mind). On this ability, this Occupational Group is typically made up of
 1. the top 10% of people in general.
 2. above average people.
 3. average, middle third of people in general.
 4. below average people.
 5. the bottom 10% of people in space relations.
11. Spelling (knowing how to spell). On this ability, this Occupational Group is typically made up of
 1. the top 10% of people in general.
 2. above average people.
 3. average, middle third of people in general.
 4. below average people.
 5. the bottom 10% of people in spelling.

CONTINUE. Choose the one best answer to each question.

2. Language usage (ability to recognize and use correct grammar, punctuation, and capitalization). On this ability, this Occupational Group is typically made up of

1. the top 10% of people in general.
2. above average people.
3. average, middle third of people in general.
4. below average people.
5. the bottom 10% of people in language usage.

3. Verbal understanding involved. In this Occupational Group, workers must be able to

1. read and remember complex passages involving special vocabularies.
2. understand the meanings of words in general literary use.
3. read ordinary newspapers and carry on conversations.
4. understand simple instructions and answer simple questions.

4. How strong one must be. In this Occupational Group the work is generally

1. sedentary, done sitting down and lifting only light objects.
2. light, one may stand or walk but does not have to lift heavy objects.
3. not more than moderately heavy, things to be lifted never weigh more than 50 pounds and usually less than 25.
4. heavy, with much standing, walking, and lifting objects weighing up to 100 pounds in loading or moving equipment.

5. and 16. Below are 10 types of interests which people may have:

- | | |
|--------------------|-------------------------------------------------------------------------------|
| 1. Outdoor | - activities involving being outdoors |
| 2. Clerical | - detail work calling for accuracy and neatness with words or figures |
| 3. Computational | - working with numbers, arithmetic, etc. |
| 4. Mechanical | - working with things, machines, equipment |
| 5. Scientific | - experimenting, laboratory research, understanding the how and why of things |
| 6. Artistic | - enjoying design, color, shape |
| 7. Literary | - working with words, stories, ideas |
| 8. Musical | - enjoying listening or playing music |
| 9. Persuasive | - influencing others personally or in writing |
| 10. Social Service | - helping people who are in need or in trouble |

Most occupations involve at least two of these types of interests. Pick out the two interests which are typical of most of the occupations in your Occupational Group and notice their numbers in the list above. Then record those numbers on the Answer Sheet, one in the box after Question 15 and the other in the box after Question 16.

CONTINUE. Choose the one best answer to each question.

Occupations differ in the extent to which they permit people in them to find what they want in life. In the following 15 questions, indicate how well the Occupational Group you picked provides opportunities for satisfying the values listed.

<u>Values</u>	<u>Opportunities for satisfying:</u>		
17. Altruistic (helping people):	1. Poor.	2. Average.	3. Good.
18. Artistic (enjoying beauty):	1. Poor.	2. Average.	3. Good.
19. Creative (making new things or creating new ideas):	1. Poor.	2. Average.	3. Good.
20. Intellectual (working with ideas and solving problems):	1. Poor.	2. Average.	3. Good.
21. Independence (being free to be yourself):	1. Poor.	2. Average.	3. Good.
22. Achievement (feeling you have really accomplished something):	1. Poor.	2. Average.	3. Good.
23. Prestige (winning the respect of others):	1. Poor.	2. Average.	3. Good.
24. Managing (planning work and supervising people):	1. Poor.	2. Average.	3. Good.
25. Economic (making plenty of money and having good things):	1. Poor.	2. Average.	3. Good.
26. Security (being sure of a job):	1. Poor.	2. Average.	3. Good.
27. Surroundings (having a good place to work in):	1. Poor.	2. Average.	3. Good.
28. Supervisory relations (having a good boss):	1. Poor.	2. Average.	3. Good.
29. Companionship (having pleasant people to work with):	1. Poor.	2. Average.	3. Good.
30. Variety (doing many different things or working in various places):	1. Poor.	2. Average.	3. Good.
31. Way-of-life (living a good life in a nice place):	1. Poor.	2. Average.	3. Good.

CONTINUE. Choose the one best answer to each question.

32. The amount of education required by your preferred occupational group is shown by a

1. postgraduate degree (M.A. or Ph.D.) from a graduate school.
2. professional degree (M.D., LL.B., etc.) from a professional school.
3. B.A. or B.S. from a college or university.
4. A.A. or certificate from a two-year college.
5. diploma from a business or technical school after high school.
6. diploma from high school.
7. lack of diploma or certificate requirements.

33. In your preferred Occupational Group one needs

1. no specialized training.
2. special courses (for instance, commercial or vocational) in high school.
3. an apprenticeship or more than a few days of on-the-job training.
4. one or more short courses in business or technical school.
5. a particular major in college.
6. a postgraduate or professional degree in a special field.

34. The best single way to get one's first job in this Occupational Group is through

1. direct application to the employer.
2. an examination that puts one on the eligible list.
3. the union.
4. one's school, or college, or professional school.
5. an employment agency.

35. Occupations vary in their social and economic levels, that is, in how well the people working in them can live. How does the Occupational Group you have in mind compare with others in this way? It is

1. among the highest level occupations.
2. above average.
3. about average in how people can live.
4. below average.
5. among the lowest.

36. Some occupational fields are likely to change considerably in the nature of the work as a result of future developments in technology and science. The Occupational Group you are rating is likely to

1. become quite different in the knowledge and skills required.
2. change somewhat.
3. stay pretty much the same.

CONTINUE. Choose the one best answer to each question.

7. How steady is the work in this Occupational Group?

1. Even in bad times workers are usually sure of a job and regular income once they are employed and qualified.
2. Except in bad times, workers are usually sure of a job and a regular income.
3. Employment is affected by minor changes in the volume of business and there is some risk of brief periods of unemployment.
4. Employment is affected by economic changes and the risk of unemployment is great.

8. How steady is the income from this kind of work?

1. Income goes up and down with the performance of the worker, as in piece-work, or commission, or fee-charging jobs.
2. Income varies from week to week with overtime pay or temporary lay-offs.
3. Income is steady as it is based on a fixed salary.

9. Annual incomes vary with the occupation. How well does this Occupational Group pay? It is

1. one of the highest paying fields.
2. above average.
3. about average in how well it pays.
4. below average.
5. one of the lowest paying fields.

10. Most people in this Occupational Group work for

1. government agencies, federal, state, municipal, etc.
2. private companies, organizations or institutions.
3. both governmental and private organizations.
4. themselves.

11. The hours of work in these occupations are generally

1. regular, daytime, hours fixed by the organization.
2. shift work, involving no change of shift.
3. shift work, involving changing shifts at times.
4. irregular, changing from day to day or week to week, as the situation demands.
5. irregular, but under control of the individual.
6. fixed, but under the control of the individual.

End of Part VI.

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ANSWER SHEET
CAREER DEVELOPMENT INVENTORY: PARTS IV, V, VI
Junior and Senior High School Form III, Modular

Name or Code No. _____ Date _____
PLEASE PRINT Last Name, First Name Middle Initial
School _____ Town _____
Grade: 7th _____ 8th _____ 9th _____ 10th _____ 11th _____ 12th _____ Junior College _____
Sex: Male _____ Female _____ OCCUPATIONAL GROUP PREFERENCE _____ (Fill in the Group Letter from the Occupational Group Preference Form)

DIRECTIONS: Make no marks except in the spaces provided. Use a pencil or pen and make a heavy line across the number on the answer sheet that corresponds to the number you chose in the Inventory, like this: 1. 1 - 2 - 3 - 4 - 5. If you want to change your answer, blacken out the one you incorrectly chose and then mark the answer you prefer.

PART IV		PART V		PART VI	
1. 1-2-3-4	16. 1-2-3-4	1. 1-2-3-4-5	16. 1-2-3-4-5	1. 1-2-3-4	22. 1-2-3
2. 1-2-3-4	17. 1-2-3-4	2. 1-2-3-4-5	17. 1-2-3-4-5	2. 1-2-3-4	23. 1-2-3
3. 1-2-3-4	18. 1-2-3-4	3. 1-2-3-4-5	18. 1-2-3-4-5	3. 1-2-3-4	24. 1-2-3
4. 1-2-3-4	19. 1-2-3-4	4. 1-2-3-4-5	19. 1-2-3-4-5	4. 1-2-3-4	25. 1-2-3
5. 1-2-3-4	20. 1-2-3-4	5. 1-2-3-4-5	20. 1-2-3-4-5	5. 1-2-3-4-5	26. 1-2-3
6. 1-2-3-4	21. 1-2-3-4	6. 1-2-3-4-5	21. 1-2-3-4-5	6. 1-2-3-4-5	27. 1-2-3
7. 1-2-3-4	22. 1-2-3-4	7. 1-2-3-4-5	22. 1-2-3-4-5	7. 1-2-3-4-5	28. 1-2-3
8. 1-2-3-4	23. 1-2-3-4	8. 1-2-3-4-5	23. 1-2-3-4-5	8. 1-2-3-4-5	29. 1-2-3
9. 1-2-3-4	24. 1-2-3-4	9. 1-2-3-4-5	24. 1-2-3-4-5	9. 1-2-3-4-5	30. 1-2-3
10. 1-2-3-4	25. 1-2-3-4	10. 1-2-3-4-5	25. 1-2-3-4-5	10. 1-2-3-4-5	31. 1-2-3
11. 1-2-3-4	26. 1-2-3-4	11. 1-2-3-4-5	26. 1-2-3-4-5	11. 1-2-3-4-5	32. 1-2-3-4-5-6-7
12. 1-2-3-4	27. 1-2-3-4	12. 1-2-3-4-5	27. 1-2-3-4-5	12. 1-2-3-4-5	33. 1-2-3-4-5-6
13. 1-2-3-4	28. 1-2-3-4	13. 1-2-3-4-5	28. 1-2-3-4-5	13. 1-2-3-4	34. 1-2-3-4-5
14. 1-2-3-4	29. 1-2-3-4	14. 1-2-3-4-5	29. 1-2-3-4-5	14. 1-2-3-4	35. 1-2-3-4-5
15. 1-2-3-4	30. 1-2-3-4	15. 1-2-3-4-5	30. 1-2-3-4-5	15. <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	36. 1-2-3
				16. <div style="border: 1px solid black; width: 100px; height: 20px;"></div>	37. 1-2-3-4
				17. 1-2-3	38. 1-2-3
				18. 1-2-3	39. 1-2-3-4-5
				19. 1-2-3	40. 1-2-3-4
				20. 1-2-3	41. 1-2-3-4-5-6

APPENDIX B
QUESTIONNAIRE RESPONSES

APPENDIX B

Questionnaire Responses

The responses of the participants in the program were organized into two parts: positive comments and suggestions for change. The number in parenthesis which follows each comment indicates the number of times the same comment was made.

Positive Comments

1. The game makes the player realize that future plans must be flexible as unplanned events do occur. (3)

2. I liked the spinner to determine whether a job was landed, or if you could get married, for example, because some things are full of chance. (1)

3. Planning someone else's life is difficult, but it makes you think about your own plans. (2)

4. The game taught me about my future and the possible events which may occur. (2)

5. When planning for the future, you have to realize that it is your life and how you plan it will determine how you will live. (1)

6. It gives a good indication of the various choices you have. (2)

7. The game gives good experience in overseeing a life. It can show where a person has gone wrong and also what the good decisions were for him. (1)

8. It made me aware of the decisions I will have to make. (2)

9. It gave me a good idea of the importance of education for various jobs. (2)

10. I feel I now have a firmer grip on planning my life. It's a benefit to those who have not thought about the future. (3)

11. The use of our high school guide made it more realistic. (4)

12. I got more involved with it every round we played. (3)

13. I like the unexpected: losing the job, failing a course; it would have been boring otherwise because plans don't always work out. (2)

14. It was interesting, but boy, really frustrating. (1)

15. The game was worthwhile as it gave us the opportunity to look at one person's life and plan it while at the same time we were looking through booklets that were able to let us see different occupations you can go into with so much education. (1)

16. It makes you really want to set goals for yourself and work at getting them. (2)

17. The game had most benefit if you could play it as if he/she was you. (2)

Criticisms and Suggestions for Change

1. Update the salaries every two years. (6)

2. There are two sexist rules that should be changed: the 25 hours of housework for married females, and the rule for 60 hours of housework for females with children. Why aren't the men helping? (3)

3. Include more modern unplanned events to deal with such issues as: child born with disability, divorce, unemployment,

accident. (3)

4. Have room and board charged once the profile person reaches eighteen, if he/she is still at home, but working. (1)

5. Make scoring for grades less up to luck on spins. Improve the method. (10)

6. If you get married, you should have to plan the other person's life, too. (1)

7. Change the housework rule. Nobody does that much per week. (5)

8. Place stress on budgeting: rent, food, clothing, leisure, rather than just figuring out a lump sum of net earning available for spending. (3)

9. I would like more information on the profile person. (1)

10. I would like to have also had lectures, pamphlets, films, in addition to the game. (2)

11. Canadians don't have the draft, so remove that unplanned event card. (1)

12. A person working shouldn't necessarily get more points than a person choosing to remain in school. (2)

13. Increase the size of the newspaper to allow for wider job choice. (2)

14. I found it surprising that you could get higher points one round for dropping out of school and getting married, and then lower scores for going back to school. (1)

15. There was not enough variety of part-time jobs offered. (1)

APPENDIX C
EXAMPLE OF VOCATIONAL MATURITY LEVELS

APPENDIX C

Example of Vocational Maturity Levels

An example of the behaviors which would enable an observer to note differences between a sixteen year old with a high level of vocational maturity and one with a low level of maturity are given below.

A sixteen year old who exhibited a high degree of vocational maturity would have moved beyond the exploration area into crystallization in Super's terms. He would have narrowed down his vocational choices to ones which are more solidly based upon reality as it exists for him. His choices will now be based on his experiences in related school subjects, on his financial standing, and knowledge of the area he wished to enter. He would be able to verbally express his vocational choices and goals giving a rationale for each choice based on reality. He would be able to discuss the investigative activities undertaken to learn more about his interest area.

A sixteen year old who exhibited a low level of vocational maturity would be working from a base in fantasy, not reality. He would probably be at the exploration stage, unable to move beyond this until he is aware that various factors should be considered before specific choices are made. Therefore, he would be unable to verbally express his possible future vocational choices.

APPENDIX D

SEX DIFFERENCES IN PRE AND POST-TEST MEAN TOTAL TEST SCORES

APPENDIX D

Sex Differences in Pre and Post-Test Mean Total Test Scores

ZERO SCORES ARE INCLUDED IN CALCULATIONS

FEMALE EXPERIMENTAL GROUP MEMBERS)									
OUTPUT FOR GROUP 1									
SAMPLE SIZE	MAXIMUM VALUE	MINIMUM VALUE	GROUP SUM	SUM OF SQUARES	GROUP MEAN	VARIANCE	STANDARD DEVIATION		
VARIABLE 1	25	131.000	52.000	242120.000	96.720	330.440	36.1672		
VARIABLE 2	25	345.000	165.000	6510.00000	260.400	1803.76	42.4763		
VARIABLE 3	25	24.000	7.000	9012.00000	13.720	13.2423	3.6355		
VARIABLE 4	25	29.000	17.000	598.000000	23.920	8.71374	2.95150		
VARIABLE 5	25	28.000	11.000	504.000000	20.160	17.1749	4.1420		
VARIABLE 6	25	30.000	13.000	558.000000	22.320	15.0111	4.3467		
VARIABLE 7	25	506.000	284.000	11101.00000	444.040	3731.05	61.0489		
VARIABLE 8	25	146.000	52.000	2508.00000	103.520	437.133	20.9077		
VARIABLE 9	25	366.000	167.000	7003.00000	263.120	1500.11	38.4405		
VARIABLE 10	25	20.000	8.000	525.000000	21.600	17.7600	4.4140		
VARIABLE 11	25	29.000	20.000	612.000000	24.490	0.00790	2.45153		
VARIABLE 12	25	26.000	13.000	495.000000	19.800	11.4007	3.34074		
VARIABLE 13	25	30.000	13.000	545.000000	21.800	23.1007	4.00500		
VARIABLE 14	25	578.000	344.000	11768.00000	470.720	4375.47	60.1473		
(MALE EXPERIMENTAL GROUP MEMBERS)									
OUTPUT FOR GROUP 2									
SAMPLE SIZE	MAXIMUM VALUE	MINIMUM VALUE	GROUP SUM	SUM OF SQUARES	GROUP MEAN	VARIANCE	STANDARD DEVIATION		
VARIABLE 1	20	138.000	59.000	1994.00000	95.700	804.014	21.5509		
VARIABLE 2	20	363.000	215.000	5326.00000	266.400	1612.92	41.0235		
VARIABLE 3	20	22.000	12.000	300.000000	16.000	7.66000	2.1005		
VARIABLE 4	20	27.000	12.000	396.000000	19.900	15.6005	3.10112		
VARIABLE 5	20	27.000	7.000	401.000000	14.300	29.1100	5.39500		
VARIABLE 6	20	28.000	15.000	456.000000	20.050	19.2400	4.38700		
VARIABLE 7	20	577.000	401.000	8445.00000	422.250	3400.09	58.3171		
VARIABLE 8	20	147.000	8945.000	3979719.00	442.250	4400.931	60.5002		
VARIABLE 9	20	306.000	2263.000	409133.000	201.350	51.3157	5.13157		
VARIABLE 10	20	23.000	9.000	5627.00000	17.250	13.0075	3.60900		
VARIABLE 11	20	22.000	12.000	445.000000	20.200	15.0002	3.95500		
VARIABLE 12	20	20.000	9.000	6480.00000	17.200	27.0002	5.25000		
VARIABLE 13	20	30.000	11.000	423.000000	21.150	20.0000	5.00000		
VARIABLE 14	20	596.000	370.000	9427.00000	471.350	3491.02	60.3601		
(FEMALE CONTROL GROUP MEMBERS)									
OUTPUT FOR GROUP 3									
SAMPLE SIZE	MAXIMUM VALUE	MINIMUM VALUE	GROUP SUM	SUM OF SQUARES	GROUP MEAN	VARIANCE	STANDARD DEVIATION		
VARIABLE 1	24	131.000	52.000	2345.00000	97.042	346.793	18.6000		
VARIABLE 2	24	351.000	205.000	6407.00000	266.958	1347.00	36.7007		
VARIABLE 3	24	25.000	7.000	458.000000	19.083	14.0767	3.75169		

Group 3 continued

VARIABLE	4	24	28.000	5.000	529.000000	12193.00000	22.042	22.2072	4.71.45
VARIABLE 5	24	24	29.000	5.000	457.000000	9343.00000	19.042	25.0739	5.08003
VARIABLE 6	24	24	26.000	10.000	477.000000	9853.00000	19.875	15.7263	3.34031
VARIABLE 7	24	24	529.000	339.000	106.57.7000	47.090.71.00	444.042	2371.23	40.0053
VARIABLE 8	24	24	142.000	54.000	2332.000000	2342.16.400	90.750	39.0435	19.5009
VARIABLE 9	24	24	339.000	100.000	42.77.000000	16.375.1.00	262.375	18.5.00	43.5775
VARIABLE 10	24	24	25.000	14.000	460.000000	9234.00000	19.417	10.2437	3.00057
VARIABLE 11	24	24	26.000	9.000	534.000000	12302.0000	22.250	20.0200	4.7940
VARIABLE 12	24	24	26.000	9.000	490.000000	9454.00000	19.417	10.8103	4.11241
VARIABLE 13	24	24	27.000	10.000	430.000000	10394.0000	20.417	10.2435	4.00032
VARIABLE 14	24	24	539.000	309.000	10553.0000	47180.67.00	439.700	3242.61	50.3957

GROUP FOR GROUP 4 (MALE CONTROL GROUP MEMBERS)

VARIABLE	1	14	1.34.300	59.000	1445.00000	150703.000	103.214	539.000	23.0355
VARIABLE 2	14	14	325.000	160.000	3453.00000	873747.600	240.042	1377.80	39.7210
VARIABLE 3	14	14	26.000	13.000	261.000000	5063.00000	10.643	13.0727	3.00000
VARIABLE 4	14	14	20.000	16.000	317.000000	7257.00000	22.043	5.00041	2.0774
VARIABLE 5	14	14	24.000	7.000	232.000000	4104.00000	10.571	12.0706	4.00474
VARIABLE 6	14	14	20.000	0.0	218.000000	2500277.00	15.571	42.0010	0.01050
VARIABLE 7	14	14	529.000	342.000	5941.00000	2500277.00	157.929	309.001	50.0000
VARIABLE 8	14	14	145.000	72.000	1511.00000	103067.000	137.929	413.350	20.0312
VARIABLE 9	14	14	290.000	163.000	3431.00000	35407.0000	245.071	941.782	30.0004
VARIABLE 10	14	14	26.000	6.000	225.000000	3947.00000	10.071	23.0300	4.00190
VARIABLE 11	14	14	27.000	6.000	257.000000	5603.00000	13.057	0.00001	7.05172
VARIABLE 12	14	14	24.000	3.000	219.000000	3671.00000	15.043	31.0010	5.00324
VARIABLE 13	14	14	25.000	12.000	249.000000	4595.00000	17.706	11.0030	3.44717
VARIABLE 14	14	14	402.000	332.000	5092.00000	2510208.60	420.857	2100.04	40.7329

PRE-TEST RESULTS - VARIABLES 1 to 7 inclusive

POST-TEST RESULTS - VARIABLES 8 to 14 inclusive

The information contained on the tables of the two previous pages refers to the following:

Variable 1 - Subscale 1 "PLANNING" Pre-test

Variable 2 - Subscale 2 "USE OF RESOURCES" Pre-test

Variable 3 - Subscale 3 "CAREER DECISION-MAKING" Pre-test

Variable 4 - Subscale 4 "CAREER INFORMATION" Pre-test

Variable 5 - Subscale 5 "WORLD OF WORK INFORMATION" Pre-test

Variable 6 - Subscale 6 "INFORMATION ABOUT PREFERRED
OCCUPATION" Pre-test

Variable 7 - Pre-test total test score

Variable 8 - Subscale 1 "PLANNING" Post-test

Variable 9 - Subscale 2 "USE OF RESOURCES" Post-test

Variable 10 - Subscale 3 "CAREER DECISION-MAKING" Post-test

Variable 11 - Subscale 4 "CAREER INFORMATION" Post-test

Variable 12 - Subscale 5 "WORLD OF WORK INFORMATION" Post-test

Variable 13 - Subscale 6 "INFORMATION ABOUT PREFERRED
OCCUPATION" Post-test

Variable 14 - Post-test total test score

Group 1 - Female Experimental Group Members

Group 2 - Male Experimental Group Members

Group 3 - Female Control Group Members

Group 4 - Male Control Group Members

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